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Florida State Horticultural Society To Hold 71st Annual Meeting In Clearwater, Oct. 29-31

The Citrus Industry

Representative of Every Interest

Representing No Special Interest

Citrus Insect Control For October, 1958

Preliminary Program 71st Annual Meet Florida Horticultural Society

Mutual Plans For 1958-59 Season

Five Years Of Budwood Certification

The Lime-Avocado Story

Directors Named For Florida Citrus Exposition

Suggestions For Handling Cold Injured Citrus Trees

Questions and Answers On New Miticides For Citrus

Trend In The Fresh Fruit Industry

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DR. A. F. CAMP
PRESIDENT
FLORIDA STATE HORTICULTURAL SOCIETY

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VOL. 39 — NO. 10 OCTOBER, 1958 BARTOW, FLORIDA

These LAKE GARFIELD trees were planted by John Stenger, Bartow, in February, 1955. They are Queens on rough lemon root and averaged one-half a box per tree last season.

PLACE YOUR ORDER NOW

Due to continued heavy plantings, citrus nursery stock is expected to be in extremely short supply for 1958-59 delivery. We are already sold out of some varieties on some rootstocks. If you are planning to plant a new grove or re-set your old grove this season, we advise that you contact us immediately for your requirements. We also have a limited quantity of registered (certified budwood) trees available in some varieties.

ORDERS FOR CONTRACT BUDDING ACCEPTED

Our Fall budding will begin in October and if we cannot furnish the particular variety and rootstock you need now, we will be glad to bud it to your order. We invite you to visit our nurseries south of Lake Wales and inspect our operations. We suggest you call for an appointment.

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North of Post Office

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Night — 3-0461 or 2-5511 or 3-1451

P. O. Box 154-T : Bartow, Florida

W. L. Thompson

Citrus Insect Control

R. M. Pratt

For October 1958

W. L. THOMPSON
R. M. PRATT
R. B. JOHNSON*
Florida Citrus Experiment Station, Lake Alfred

R. B. Johnson

Red scale is now increasing rapidly and infestations are expected to be severe in many groves in October and November. Purple scale infestations are also expected to be above average in October.

Rust mite will increase sharply and will be at a high level by the end of the month. Purple mite infestations will also be above average and Texas citrus mite infestations are increasing.

SPRAY PROGRAMS

The insect and mite problem looks like it may be more inclusive this October than usual. There are many groves in need of a scalicide; rust mite, purple mite, and Texas citrus mite are all increasing; grasshoppers are showing in injurious numbers; and there are enough citrons around to make it a good season for plant bugs.

SCALE INSECT CONTROL

Purple scale is now fairly easy to find in many groves. In many more, it is not so noticeable and may do a lot of damage unless discovered and controlled. The first place to look for purple scale is on the leaves because there it is easiest to find, but the twigs and fruit should also be checked. There are two reasons why it is important to examine the fruit, especially around the button. First, a small amount of scale around the button may cause the fruit to drop later; and second, wherever there is a live purple or chaff scale on the fruit, there will be a green spot. Such green spots are not removed in the coloring room and are a pronounced grade-lowering factor.

Florida red scale is not so easy to locate as purple scale because it is usually less evenly distributed. Red scale tends to build-up to large numbers in localized areas of a gove or even on parts of trees. This means that more trees should be checked for red scale than for purple scale.

If purple, Florida red, or chaff scales are easy to find, control measures should be taken to prevent one or more of the following: leaf drop, fruit drop, grade-lowering green spots, and dead wood. Good control should be obtained throughout October because a high percentage of the scales will be in the younger stages. Parathion 15W at 1.0 to 1.7 pounds per 100 gallons is preferable to oil. Malathion 25W at 3.0 to 5.0 pounds may also be used. No oil spray of any kind should be used at this time of the year or throughout the winter because all known oils reduce the soluble solids content of fruit and make trees more susceptible to cold injury.

Soft brown scale will probably be numerous in a few groves. Parathion is ineffective, but good results may be obtained with malathion.

RED SPIDER CONTROL

During September and October, the Florida citrus grower hopes that he will control purple mite and Texas citrus mite with a single spray. In past years this has been a vain hope with some exceptions, and those who did not properly time their sprays often found that even two applications was not quite enough. Although it now appears that the newer, more effective miticides have improved the chances of all-winter mite control with one spray, much of this gain may be lost by applying too little too late. It is true that the later in the Fall one can wait before applying a miticide, the better the chance of not having to respray before post-bloom. But, this is true only if the mite population is not allowed to reach a high level before spraying. In general, the lower the mite population at the time of application, the longer the period of control is likely to be. For these reasons we strongly recommend that spraying for mites, either purple mite or Texas citrus mite, be delayed as long as possible, but that sprays not be delayed after 20 percent of the foliage is infested.

Whenever a new miticide or insecticide appears on the market, the price is usually rather high. When this happens the user is tempted to reduce his costs either by using less than the recommended amount per 100 gallons or by applying fewer gallons of spray per tree. These practices are rarely good economy. In the case of miticides that give a quick-kill, reducing the dosage in either manner may result in an equally satisfactory clean-up, but the number of weeks of control will be reduced and mites will often multiply much more rapidly when they reoccur. Sometimes only a short period of control is needed and a reduced dosage may be justified under such circumstances. It is not justified at this time of the year when a long period of control is needed.

(Continued on page 23)

SCALE AND MITE ACTIVITY BY DISTRICTS*

District	Purple Scale	Red Scale	Purple Mite	Rust Mite on leaves	Rust Mite on fruit
West Coast	3.56	3.84	.41	1.18	1.81
Indian River	4.05	3.41	1.36	.55	1.70
Upper East Coast	5.01	.26	1.75	1.15	1.17
Gainesville	4.17	.50	.67	.17	0
Orlando	3.17	2.50	.45	.69	.72
Brooksville	4.34	.19	.88	1.75	2.13
Ridge	4.72	4.35	.74	1.84	2.31
Bartow	3.27	.60	0	.80	1.00
State Average	3.99	3.51	.73	1.13	1.50
Last Year	3.42	2.85	.89	1.06	1.26

* Third week in September. Activity is computed from populations, amount of hatching of scales, and number of groves with increasing or decreasing infestations. Activity is considered high if above 4.0 for purple scale, 3.0 for red scale, and 1.5 for mites.

* Written September 23, 1958. Reports of surveys by Harold Holtsberg, Fort Pierce; J. W. Davis, Tavares; K. G. Townsend, Tampa; T. B. Hallam, Avon Park; and L. M. Sutton, Lake Alfred.

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TOO LATE for TOP PROFITS

You know the penalty of a shortage of magnesium in your citrus groves. Irregular yellow blotches in the leaves signal that you will soon be faced with a marked reduction in yield, size, and quality of your fruit. And then, before you know it, *it's too late for top profits!*

You can't afford to gamble with your next harvest . . . not when positive protection, plus improved fruit flavor, can be yours for only pennies per tree. Act now to insure an adequate supply of magnesium this season by specifying fertilizer containing Sul-Po-Mag®... also called SPM . . . in your next fertilizer order.

Why SPM? Sul-Po-Mag is a combination of water-soluble, fast-acting, readily available magnesium and premium sulphate of potash. Most citrus fertilizer manufacturers make premium grade fertilizers containing Sul-Po-Mag. For your protection, look for the SPM seal.

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Water-Soluble Double Sulphate of Potash-Magnesia
($K_2SO_4 \cdot 2MgSO_4$) 22% K_2O—18% MgO

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Attention: citrus growers who want a powerful all-season weapon to control mites

You may now use Trithion® on bearing citrus

Just Trithion controls all the important mites

No need now to use several miticides! Or to do half a job controlling mites. Trithion controls Purple mites . . . Rust mites . . . Six-spotted mites . . . Texas mites. Yes, even mite eggs. Here is the most convenient, efficient and economical material you can use. The extra long residual action of Trithion protects your trees for weeks after you apply it. And it is formulated for use as a dust or spray by ground or air. You can use Trithion up to 14 days before harvest. And it is less hazardous to apply than many other pesticides. Ask your dealer for Trithion today. Or write to Stauffer Chemical Company, Tampa, Florida.

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Mutual Plans For The 1958-59 Season

. . . By . . .

VERNON L. CONNER
PRESIDENT
FLORIDA CITRUS MUTUAL

Presented At
CITRUS INSTITUTE AT AUGUST MEETING
HELD AT CAMP McQUARRIE

I have looked forward with real pleasure to the opportunity of meeting with you here today on the occasion of the Silve Anniversary of your Citrus Growers Institute. My sincere congratulations extend to all those who, through the years, have had a part in bringing this Institute to the place of service and honor that it now holds. It has taken a lot of sacrifice, a lot of hard work, and careful planning, but all of this has been done with the idea of making this Institute of real value to the thousands of growers who have attended its sessions through the years. Mr. Norris, you and your associates have done a magnificent job.

You and I have an enviable privilege. We live in a nation that is deliberately seeking an ever-rising standard of living, a steadily increasing abundance of goods and services. Our people want better homes, better clothes, better foods. In that kind of climate we have an opportunity so to change our agricultural situation that it will be described by the cheerful word "abundance" better than by the depressing word "surplus." You and I have seen this great Florida citrus industry lead the way in changing an unfavorable agricultural situation into a well-organized, happy and profitable one that is the envy of American agriculture. It has been done by growers working together to do jointly things that could not be done by individual effort but I caution that we cannot afford to become complacent. The job ahead demands our best efforts.

I have been asked to tell you today something of Mutual's plans that will be presented to the board of directors for the coming season. Some two months ago, Florida Citrus Mutual celebrated its tenth anniversary — many of you attended that anniversary meeting. At that time I said: "Mutual is a problem organization." What I mean is simply

(Continued on page 20)

CITRUS GROWS BEST WITH LOW-COST AMMONIUM NITRATE

Results of Recent Ten-Year Test Offers Important New Facts on Citrus Production.

From "Nitrogen Sources as Related to Yield and Quality of Hamlin Oranges" (A Ten-Year Summary) by John W. Sites, I. W. Wander and E. J. Desyzk, Florida Citrus Experiment Station, Lake Alfred.

(Full report furnished on request. See below.)

"At no time during the ten-year period did trees supplied with nitrogen wholly from nitrate sources produce fruit of the best quality or produce the highest yields. This suggests that nitrate nitrogen alone will not give optimum results.

"Mixtures of nitrate and ammoniacal nitrogen would appear preferable as a maintenance nitrogen source where groves are in good physical condition and where sufficient dolomite is used to maintain the pH between 5.5 and 6.0 at all times.'

Earlier in this same report, it is stated that,

"The most significant conclusion which may be drawn in the opinion of the authors is that maximum utilization of applied nitrogen depends largely on the soil conditions which prevail rather than upon the source of nitrogen, per se, and that soil pH is probably the most important single factor with which the grower must be concened."

Lime Is Necessary

Not only do Sites, Wander and Deszyk emphasize dolomite to maintain pH, but Bryan and Nesmith, in their important report[1] state,

"Repeated records are re-emphasizing the need for ample soil calcium as well as proper pH to maintain the highest fertilizer efficiency."

Yes, lime is necessary all the time, whether you use ammonium nitrate or not. pH alone is not enough.

Subsoil pH Not Affected By Nitrogen Source

Smith and Reuther, in their Preliminary Report[2], comparing Calcium Nitrate, Ammonium Nitrate and Ammonium Sulphate under good liming conditions, could find no evidence to support the older theory that subsoil acidity can be caused by nitrogen sources. They further state,

"If yield, tree growth and fruit quality remain relatively unaffected, as they have during the first three years of this test, the source of nitrogen cannot be considered as a primary factor in citrus production on Florida acid soils."

Use these facts to cut your fertilizer costs and produce better quality fruit this year—the low-cost DIXIE Nitrogen way.

For complete copies of the three reports quoted above, see your County Agent or write us.

Low-Cost, Double-Barreled, 33.5% Dixie Nitrogen Contains the Ideal Balance of ½ Nitrate and ½ Ammoniacal Nitrogen.

Specify safe, dependable, low-cost DIXIE Nitrogen for your grove fertilizers.

Bold face characters are ours.

1. Fertilizer and Soil Amendment Studies with Pineapple Oranges on Lakeland Sand. By O. C. Bryan and James Nesmith. A Progress Report of Short Research Grove 1949-1955. Published by Soil Science Foundation, Lakeland, Florida.

2. Preliminary Report on the Effect of Nitrogen Source and Rate and Lime Level on pH, Root Growth, and Soil Constituents in a Marsh Grapefruit Grove. By Paul F. Smith and Walter Ruether. U.S.D.A. Horticultural Field Station, Orlando, Florida.

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Preliminary Program 71st Annual Meeting

Florida State Horticultural Society

Clearwater, Oct. 29-31, 1958

GENERAL SESSION

Thursday Morning, October 30, 1958
9:00 A. M.

Invocation, Dr. Robert S. Lambert, Rector, Episcopal Church of the Ascention, Clearwater.

Address of Welcome, Lewis H. Homer, Mayor of Clearwater.

Response to Address of Welcome.

President's Address, Dr. A. F. Camp, Lake Alfred.

Address: "Florida Freezes of 1957-58, Warren O. Johnson, Meterologist, U. S. Weather Bureau, Lakeland.

Annual Business Meeting.

ANNUAL BANQUET

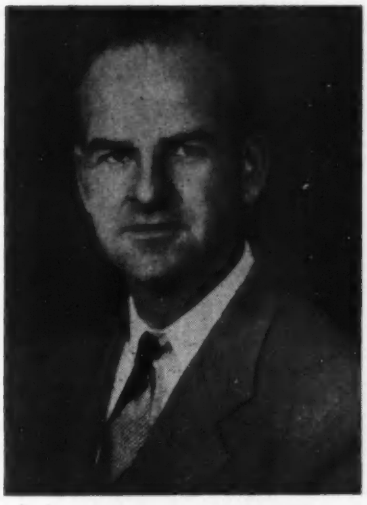
Thursday, October 30, 1958
7:00 P. M.
Toastmaster
John Henry Logan, Clearwater

CITRUS SECTION

Cliff Sutton, Vice President
Wednesday Afternoon, October 29

2:00 — Field Observations on Florida Citrus Following the 1957-1958 Freezes. Jack T. McCown, Agricultural Extension Service, Gainesville.

2:20 — Effect of the Cold Winter of 1957-1958 in Florida on Citrus Insect and Mite Populations and Their Control. Robert M. Pratt and W. L. Thompson, Citrus Experiment Station, Lake Alfred.



DR. ERNEST L. SPENCER
SECRETARY OF THE SOCIETY

2:40 — Three Years of Experiments with new Miticides. Herbert A. Spencer, U.S.D.A., Orlando.

3:00 — Observations on the Influence of Various Rootstocks on Cold Resistance of the Scion Variety F. E. Gardner, P. C. Reece and George E. Horanic, U.S.D.A., Orlando.

3:20 — Promising Citrus Rootstocks that Tolerate the Burrowing Nematode. Harry W. Ford, Citrus Experiment Station, Lake Alfred, and W. A. Feder, U.S.D.A., Orlando.

3:40 — Break.

3:50 — Tests to Determine Longevity of the Burrowing Nematode and Meadow Nematodes Under Florida Greenhouse Conditions. Julius Feldmesser, W. A. Feder, R. V. Rebois and P. C. Hutchins, U.S.D.A., Orlando.

4:05 — Chemical Weed Control in Groveland Ditches and in Citrus Planting Sites. John R. King, W. A. Simanton and Dale W. Kretchman, Citrus Experiment Station, Lake Alfred.

4:25 — Sectional Business Meeting.

Thursday Afternoon, October 30

2:00 — Reaction of Zineb with Copper Compounds, Oil Deposits When Applied with Zineb and Deposits of Zineb When Applied With a Variety of Materials. J. H. McBride, Jr., Citrus Experiment Station, Lake Alfred.

2:20 — Unfruitfulness in the

(Continued on page 9)

Count on KELTHANE to kill mites and prove to yourself the truth of this statement: "With KELTHANE, you get low-cost and the best mite control." The money-saving reasons for this high-activity and low-cost performance are all-important:

- KELTHANE delivers quick and certain kill to *all* of the troublesome citrus mites.
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- KELTHANE can be used on all citrus varieties: oranges, grapefruit, limes, lemons, tangerines, tangeloes, and kumquats.

Start your KELTHANE program as soon as mites start to build up. You will like the way KELTHANE kills mites in hot or cool, humid, wet, or dry weather. You can use KELTHANE all season—to within a few days of harvest if necessary.

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CHECKMATE FOR MITES

KELTHANE

FLORIDA STATE HORTICULTURAL SOCIETY

(Continued from page 7)

Orlando Tangelo. A. H. Krezdorn, Citrus Experiment Station, Lake Alfred, and F. A. Robinson, Agricultural Experiment Station, Gainesville.

2:40 — Wind Machines for Frost Protection in Florida. James G. Georg, U. S. Weather Bureau, Lakeland.

3:00 — Occurrence, Distribution and Control of the Fuller Rose Beetle in Citrus Groves. John R. King, Citrus Experiment Station, Lake Alfred.

3:20 — Break.

3:30 — Rust Mite Control With Materials Applied in Oil Emulsions. Roger B. Johnson, Citrus Experiment Station, Lake Alfred.

3:45 — Finding the Best Lemon for Florida. A Report of Progress. L. C. Knorr, Citrus Experiment Station, Lake Alfred.

Part I

Introduction and Horticultural Aspects of Lemon Varieties. L. C. Knorr, Citrus Experiment Station, Lake Alfred.

Part II

Evaluation of Florida Lemons for Processing Use. F. W. Wenzel, Citrus Experiment Station, Lake Alfred.

Part III

Evaluation of Florida Lemon Oil. J. W. Kesterson, Citrus Experiment Station, Lake Alfred.

Part IV

Evaluation of Florida Lemons for Fresh Fruit. W. Grierson, Citrus Experiment Station, Lake Alfred.

Friday Morning, October 31

9:00 — Effects of Lime and Phosphate Applications on Growth of Young Citrus Trees. W. F. Spencer, Citrus Experiment Station, Lake Alfred.

9:20 — Effectiveness of Soil Applications of Zinc. C. D. Leonard and Ivan Stewart, Citrus Experiment Station, Lake Alfred.

9:45 — Relation of Potash Levels in Commercial Groves. A. E. Willson, Minute Maid Corporation, Plymouth.

10:05 — Relative Cold Damage of Citrus Trees Grown with Differential Fertilization. P. F. Smith and G. K. Rasmussen, U.S.D.A., Orlando.

10:35 — Break.

10:45 — The Effect of Sub-Freezing Temperatures on the Subsequent Germination of Citrus Seeds. George E. Horanic and F. E. Gardner, U. S. D. A., Orlando.

11:05 — Latest Fertilizer Recommendations on Bearing and Non-Bearing Citrus. Herman J. Reitz, Citrus Experiment Station, Lake Alfred.

PROCESSING SECTION

R. A. Dennison, Vice President Presiding

Wednesday Afternoon, October 29

2:00 — Pesticide Residue Program in Florida. C. H. Van Middelem, Agricultural Experiment Station, Gainesville.

2:20 — Processing Sweet Potatoes. J. G. Woodroof, University of Georgia, Experiment, Georgia.

2:40 — Factors to Consider in Controlling Insects in a Feed Warehouse. D. I. Murdock, Minute Maid Corporation, Plymouth.

3:00 — Treatment of Citrus By-Products with Liquid Anhydrous Ammonia. I. Ammoniation of Dehydrated, Limed, Citrus Pulp. James M. Bonnell, Tropicana Products, Inc., Bradenton.

3:20 — Treatment of Citrus By-Products with Liquid Anhydrous Ammonia. II. Extraction of Hesperdin from Dehydrated, Limed, Citrus Pulp. James M. Bonnell, Tropicana Products, Inc., Bradenton.

3:40 — Mechanization of Citrus Fruit Picking. P. J. Jutras and C. E. Coppock, Citrus Experiment Station, Lake Alfred.

4:00 — Hydrocooling of Florida Citrus. W. Grierson, F. W. Hayward, Citrus Experiment Station, Lake Alfred; and J. R. Winston, USDA, Orlando.

4:20 — Temperature During Rail Shipments of Florida Citrus Using Cartons and Four-Fifths Wire Bound Boxes. J. R. Winston, USDA, Orlando.

4:30 — Sectional Business Meeting.

Thursday Afternoon, October 30

1:40 — Suggested Trends in Lime and Avocado Processing, C. F. Ivins, Florida Avocado and Lime Commission, Homestead.

2:00 — Pressurized Food Packaging - Future "Space Travel" Dispensers. Robert A. Nanz, Florida Chemists and Engineers, Inc., Orlando.

2:20 — Improvements in the Design of Citrus Concentrate Evaporators. Ralph William Cook, Professional Engineering Services, Inc., Dunedin.

2:40 — Effect of Stabilization Temperature on the Viscosity and Stability of Concentrated Orange Juices. G. H. Ezell, Florida Citrus Commission; and R. W. Olsen, Citrus Experiment Station, Lake Alfred.

3:00 — The pH of Citrus Juice 1. Brix, Acid, and pH Relationship. Robert W. Kilburn, Florida Citrus Canners Cooperative, Lake Wales.

3:20 — A Criterion of Quality for Processed Grapefruit Juice. R. Hendrickson, J. W. Kesterson and G. Edwards, Citrus Experiment Station, Lake Alfred.

3:40 — Ultraviolet Absorption Technique to Determine the Maringin Content of Grapefruit Juice. R. Hendrickson, J. W. Kesterson and G. Edwards, Citrus Experiment Station, Lake Alfred.

Friday Morning, October 31

8:40 — Inter-American Food Institute. J. Arthur Lewis, University of Miami, Miami.

9:00 — Processing Freeze-Damaged Oranges. Owen W. Bissett, U. S. Citrus Products Station, Winter Haven.

9:20 — Chemical Characteristics of Citrus Juices from Freeze-Damaged Fruit. A. H. Rouse, C. D. Atkins and E. L. Moore, Citrus Experiment Station, Lake Alfred.

9:40 — Recovery of Fruit Solids from Orange Pulp. R. W. Olsen, F. W. Wenzel, Citrus Experiment Station; and R. L. Huggart, Florida Citrus Commission, Lake Alfred.

10:00 — Comparison of Flavor and Color in Frozen Concentrated Orange Juice. F. W. Wenzel, R. W. Olsen, Citrus Experiment Station; and R. W. Barron, R. L. Huggart, and M. D. Maraulja, Florida Citrus Commission, Lake Alfred.

10:20 — Effect of Dielectric Heat on Some Characteristics of Orange Concentrate. F. W. Wenzel, Roger Patrick, A. H. Rouse, Citrus Experiment Station; and C. D. Atkins, E. C. Hill, R. W. Barron, G. H. Ezell and E. L. Moore, Florida Citrus Commission, Lake Alfred.

10:40 — Effect of Arsenic Spray on the Quality of Processed Grapefruit Sections - With Special References to Pectin. C. D. Atkins and A. H. Rouse, Citrus Experiment Station, Lake Alfred.

11:00 — The Use of Arsenic on Citrus Fruits - A Review. Gray Singleton, Lakeland.

VEGETABLE SECTION

John H. Causey, Vice President Presiding

Wednesday Afternoon, October 29

2:00 — Massive Insecticide Seed Treatment, Wireworm Control, and Sweet Corn Seedling Emergence. E.

D. Harris, Jr., Everglades Experiment Station, Belle Glade.

2:15 — DDT & Parathion Residues on Sweet Corn. C. H. Van Middelem, Agricultural Experiment Station, Gainesville and E. D. Harris, Jr., Everglades Experiment Station, Belle Glade.

2:35 — Chemical Control of Nematodes Parasitic on Turf and Sweet Corn. Wm. Lantz.

2:50 — Comparisons of Insecticide Sprays and Granules for Corn Bud Worm Control. D. S. Harrison and E. D. Harris, Jr., Everglades Experiment Station, Belle Glade.

3:05 — Intermission.

3:25 — Florida Sawdust for Home Hydroponics. S. N. Edson, University of Florida, Gainesville.

3:55 — Viruses Affecting Vegetables in South Florida. John N. Simons, Everglades Experiment Station, Belle Glade.

4:15 — Potato Variety Tests at Hastings. A. H. Eddins and E. N. McCubbins. Potato Investigations Laboratory, Hastings.

4:35 — Sectional Business Meeting.

Thursday Afternoon, October 30

2:00 — Lithium as a Fungicide on Celery. John F. Darby and P. J. Westgate, Central Florida Experiment Station, Sanford.

2:20 — Fungicide for the Control of Late Blight of Celery. John F. Darby, Central Florida Experiment Station, Sanford.

2:40 — Effect of Spacing on Growth and Yield of Three Varieties of Fall-Grown Celery. Howard W. Burdine, Everglades Experiment Station, Belle Glade.

3:00 — Intermission.

3:20 — Economic Study of Marketing Celery in California & Florida. Marshall R. Godwin, Agricultural Experiment Station, Gainesville.

3:50 — Yields of Shallots Affected by Soil Treatments. E. G. Kelsheimer, Gulf Coast Experiment Station, Brandenton.

4:00 — Results of Watermelon Fertilizer Trials at Gainesville and Live Oak. V. F. Nettles, Agricultural Experiment Station, Gainesville, and H. W. Lundy, Suwanee Valley Experiment Station, Live Oak.

Friday Morning, October 31

9:00 — The Effect of Irrigation on the Chemical Composition of Tomato Leaves. John L. Malcolm and Roy W. Harkness, Sub-Tropical Experiment Station, Homestead.

9:20 — Effect of Urea Nitrogen on Nutritional Leaf Roll of Tomatoes. G. M. Volk, Agricultural Experiment Station, Gainesville.

9:40 — The Jacksonville Produce Distribution Area. E. F. Scarborough.

10:00 — Intermission.

10:20 — Serpentine Leaf Miner Control of Pole Beans. R. M. Baranowski, Sub-Tropical Experiment Station, Homestead.

10:35 — Recent Experiments for Control of Insects Attacking the Pods of Leguminous Vegetable Crops. W. G. Genung, Everglades Experiment Station, Belle Glade.

10:55 — The Recovery of Pepper Plants Injured by the 1957-1958 Freeze. Henry Y. Ozaki, Plantation Field Laboratory, Fort Lauderdale.

KROME MEMORIAL SECTION

Seymour Goldweber, Vice President Presiding

Wednesday Afternoon, October 29

2:00 — Problems and Progress in Developing Temperate Climate Fruits for Florida. R. H. Sharpe and J. S. Shoemaker, Agricultural Experiment Station, Gainesville.

2:15 — Dioscorea - Potential Drug Crop for Southern United States. Jeffrey E. Shrum, Jr., and Paul K. Soderholm, U. S. D. A., Miami.

2:30 — Report on the Annual Meeting of the Caribiean Region of the ASHS, 1958. Frank D. Venning, U. S. Operations Mission to Cuba, ICA, Habana, Cuba.

2:35 — Growing Mangos in the Everglades. Floyd A. Erickson, Canal Point.

2:40 — Confessions of a Tropical Garden Detective. Bert Livingston, Tampa Tribune - Tampa.

3:00 — "Big Bud" of Tung, a Genetic Variation. John R. Large, Pecan Field Laboratory, Monticello.

3:10 — How to Make Plaster Models. William R. Llewellyn, County Agent's Office, Homestead.

3:25 — Preliminary Tests of Grapevines Planted on Raised Beds vs. Flat Land Culture. Norman C. Hayslip and Loren H. Stover, Indian River Field Laboratory, Fort Pierce.

3:40 — Report of the Subtropical Fruit Variety Committee, 1958. Carl W. Campbell, U.S.D.A., Miami and Hugh Whelchel, County Agent's Office, Homestead.

4:00 — Sectional Business Meeting.

Thursday Afternoon, October 30

2:00 — The Tamarind (**Tamarindus indica** L.), Its Food, Medicinal and Industrial Uses. Julia F. Morton, University of Miami, Coral Gables.

2:30 — Developmental Morphology of the Vegetative Axis of Avocado and its Singnificance to Spacing, Pruning Practices, and Yields of the Groves. Frank D. Venning, U. S. Operations Mission to Cuba, ICA, Habana, Cuba.

2:45 — Some Effects of Waxes and 2,4,5-Trichlorophenoxyacetic Acid as Postharvest Treatments on Persian imes. Thurman T. Hatton, Jr., U.S.D.A., Miami.

3:00 — A Preliminary Report on Armored Scale Insects in Dade County. F. Gray Butcher, University of Miami, Coral Gables.

3:10 — Murmurings of a Sub-Tropical Horticultural Failure. J. Herndon Hansbrough, Tropical Unlimited, Tampa.

3:40 — The Lychee Story, 1957-58. John K. Rice, Florida Lychee Growers Association, Clermont.

3:55 — Rare Fruit Council Activities, 1957-58. Wm. F. Whitman and Leonard V. Wirkus, Miami Beach.

Friday Morning, October 31

9:00 — Freeze Damage to Miscellaneous Tropical Fruit. R. Bruce Ledin, Sub-Tropical Experiment Station, Homestead.

9:15 — Observations on Cold Damage to Avocados in Dade County. Wm. H. Krome, Homestead.

9:25 — Cold Damage to Mangos in Palm Beach County. James T. Miner and Lawrence Zill, Boynton Beach.

9:35 — Observations of Cold Damage to Mangos in Dade County and the Lower West Coast of Florida. Wm. W. Carmichael, W. W. Carmichael Groves and Nurseries, Perrine.

9:55 — Cold Damage to Lychees on Sandy Soils During the Winter of 1957-58. T. W. Young and J. C. Noonan, Sub-Tropical Experiment Station, Homestead.

10:15 — The Effect of Cold on Lychees on the Calcareous Soils of Southern Florida, 1957-58. S. John Lynch, University of Miami, Coral Gables.

10:35 — The Feeding of Frost Damaged Trees. Edward J. Norman, F.E.C. Fertilizer Company, Homestead.

10:40 — Temperature Variance in Microclimates of Southern Florida. Taylor R. Alexander, University of Miami, Coral Gables.

11:00 — Some External Factors Affecting the Growth Cycle of Cof-

(Continued on page 26)

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New Miticides For Citrus...

Some Timely Questions And Answers---

ROGER B. JOHNSON*
JAMES E. BROGDON**
JOHN R. KING***

Spider mites, often referred to as red spiders, are among the most important pests that attack citrus. This group includes the citrus red mite (purple mite), the six-spotted mite and the Texas citrus mite. In order to find more effective miticides for the control of these pests, promising new chemicals are constantly being tested at experiment stations in Florida. Three of the most effective of the newer materials are Kelthane, Tedion, and Trithion. These miticides have aroused considerable interest which has resulted in numerous questions. Some of the questions commonly asked are answered below:

1. Q. What is Kelthane? Tedion? Trithion?

A. Kelthane is the trademark of a new miticide manufactured by Rohm and Hass Company. The active ingredient of Kelthane is the chlorinated hydrocarbon 1,1-bis (chlorophenyl) 2,2,2-trichloroethanol.

Tedion is also the trademark of a new miticide. Tedion is manufactured in the U. S. A. by Niagara Chemical Division, Food Machinery and Chemical Corporation. The active ingredient of Tedion is a chlorinated hydrocarbon 2,4,5,4-tetrachlorodiphenyl sulfone.

Trithion is the trademark of a new miticide manufactured by Stauffer Chemical Company. Chemically, Trithion is the organic phosphate 0,0-diethyl chlorophenylthiomethyl phosphorodithioate.

2. Q. What formulations of these three miticides are available?

A. Kelthane is available as Kelthane W, a wettable powder, and Kelthane EC, an emulsion concentrate. Both formations contain 18.5 per cent active ingredient.

Tedion is currently available as a 25 per cent wettable powder.

Trithion is available as Trithion 25-W, a 25 per cent wettable powder and Trithion 4 Flowable, an aqueous (water) emulsion that contains 4 pounds of the active ingredient per gallon. A 2 per cent dust formulation, Trithion 2 Dust, is also available.

3. Q. How does the toxicity of these miticides compare with that of parathion?

A. All of these miticides are less toxic than parathion. Tedion is considered rather innocuous to warm-blooded animals while Kelthane is about one-third as toxic as DDT. Both Tedion and Kelthane should be handled with ordinary precautions -- avoid breathing the powders and spray mists and wash thoroughly with soap and water after handling and before eating or smoking. Although Trithion is less toxic than parathion, users are urged to use the precautions recommended with all organic phosphate compounds.

4. Q. Are these miticides more effective than those now recommended in the Better Fruit Program?

A. Not always.

5. Q. How do these materials compare with DN Dry Mix No. 1 in effectiveness against purple mite?

A. DN Dry Mix No. 1 is most effective when applied before heavy populations of purple mite have developed. Under these conditions Tedion should control purple mite about twice as long as DN, Trithion should last apparently longer than DN, while Kelthane should be at least as good. The effectiveness of DN is reduced by heavy rains soon after application.

During periods of rainy weather, all three of these materials should be more effective than DN Dry Mix No. 1.

6. Q. What is the order of effectiveness?

A. Tedion, Trithion, Kelthane.

7. Q. How long are these miticides effective?

A. It is impossible to predict how long control will last with any miticides because of such factors as weather, type of coverage, and severity and persistence of the mite outbreak have a bearing on the lentgh of control.

8. Q. Are these miticides effective at all times of the year?

A. All known miticides give longer control during the cool, winter months than in the warmer spring months when mites are increasing more rapidly. This is true for Tedion, Trithion, and Kelthane.

9. Q. Are any of these materials effective against rust mite? Other pests?

A. Yes. Trithion is about as effective against rust mite as wettable sulfur, but requires somewhat better coverage. Trithion is also somewhat effective against scale, but not at the dosage recommended for mites. Trithion is not recommended as a scalicide and should not be depended upon for rust mite control during the summer months. Kelthane gives some rust mite control, but not enough to be used without sulfur or zineb under most circumstances.

10. Q. Do these materials give a quick kill of spider mites?

A. Trithion and Kelthane kill spider mites quickly, but Tedion is very slow. Tedion is so slow that it should not be used where the infestation is high unless it is supplemented with a quick-killing material such as parathion, malathion, TEPP, or Chlorobenzilate.

11. Q. Should I wait until heavy populations build up before applying these materials?

A. No. Application should be made before 20 per cent of the leaves become infested. The longest control and the fewest failures are obtained when miticides are applied before high populations develop. Although Trithion and Kelthane will clean up a heavy population, the period of control my be much shorter than when these materials are applied before high populations develop.

Tedion will not clean up a heavy population. Large numbers of mites will remain for as long as 3 or 4 weeks where Tedion is used on high populations unless this miticide is used with a quick-killer such as parathion, malathion, TEPP or Chlorobenzilate.

12. Q. Are they compatible with other materials commonly used on citrus?

A. Yes, with one exception. Kelthane should not be used in alkaline mixtures such as those involving lime or lime-sulfur.

13. Q. What are the recommended dosages per 100 gallons?

A. Kelthane — 1.0 to 1.5 pints of the liquid or 1.0 to 1.5 pounds of the wettable powder. (The higher dosage is preferable during warm weather or

* Assistant Entomologist, Citrus Experiment Station, Lake Alfred.

** Assistant Entomologist, Agricultural Extension Service, Gainesville.

*** Assistant Entomologist, Indian River Field Laboratory, Ft. Pierce.

where the mite population is very high.)

Trithion — 0.5 pint of the liquid or 1.0 pound of the wettable powder.

Tedion — 0.5 pound of the wettable powder.

Lower dosages of both Kelthane and Trithion will give a good initial kill, but will often result in a shortened period of control or a more rapid post-spray build-up to injurious numbers.

14. Q. What type of coverage is needed when applying Kelthane? Tedion? Trithion?

A. As far as type of coverage is concerned, these miticides are not different from those used in previous years. For best results, spray to wet all foliage.

15. Q. Do these materials affect fruit quality?

A. No.

16. Q. Have these materials been approved for use on all citrus? What residue tolerance has been set?

A. Kelthane may be used on all citrus up to 7 days before harvest. The residue tolerance is 10 ppm.

Trithion may also be used on all citrus up to 14 days before harvest except where it is used with oil. When used with oil, the waiting period between application and harvest is 30 days. The residue tolerance for Trithion is 2 ppm.

Tedion had not been approved for use on citrus trees with fruit as of September 1 1958. However, a small quantity of Tedion is available for use on fruit. This small quantity will be sold for grower trial under an "experimental sales permit." Ask your dealer for more information. There are no limitations on the use of any Tedion after the fruit has been picked.

17. Q. What are the minimum days between application and harvest of fruit sprayed with Kelthane? Tedion? Trithion?

A. Kelthane — 7 days.

Tedion — The number of days between application and harvest had not been established as of September 1, 1958.

Trithion — 14 days (30 days when used with oil.)

18. Q. I understand that Chlorobenzilate is effective against rust mite. Is it also effective against purple mite and Texas citrus mite?

A. No. Chlorobenzilate gives a quick kill of purple mite and Texas citrus mite, but does not give long control. However, for a quick kill and long control, the mixture of Chlorobenzilate and Tedion is hard to beat.

19. Q. Is Chlorobenzilate approved for use on citrus? If so, what is the residue tolerance and how long is the waiting period between application and harvest?

A. Chlorobenzilate has been approved for use on oranges, grapefruit, lemons, and tangerines. The residue tolerance on these varieties is 5 ppm. and no waiting period is required between application and harvest.

20. Q. What are some spray combinations that will control scales, rust mite, purple mite, and Texas citrus mite during the spring? Summer? Fall?

A. Needless to say these spray combinations are not intended to cover all insect and mite situations. They are intended only as guides. Many groves will not have all of these pests at the same time and all pesticides in a suggested spray combination may not be needed. In the following spray combinations, the amounts are given for 100 gallons:

1. 1.3 per cent oil emulsion + 0.5 pound of zineb.

2. 0.7 per cent oil emulsion + 1.0 pound of 15 per cent parathion + 0.5 pound of zineb.

3. 1.7 pound of 15 per cent parathion + 0.5 pound of zineb + 0.5

(Continued on page 26)

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GERALD NORMAN
SPECIAL INSPECTOR, BUDWOOD CERTIFICATION PROGRAM
STATE PLANT BOARD

Most of you know the Florida Citrus Budwood Program had its beginning here at Camp McQuarrie. During the 1951 sessions, one whole afternoon was devoted to a symposium on certified budwood and registered nursey stock. Two research pathologists, one professional citrus nurseryman, one citrus grower and the State Plant Commissioner discussed in detail the advantages to be gained from a statewide program of organized budwood selection. These men had spent a great deal of time and thought in the preparation of this program. They had studied similar programs elsewhere in citrus and in other crops and were well qualified to discuss the subject and to present the information fairly and honestly.

These speakers also discussed the disadvantages of such programs. They told this audience that an intensive campaign of education was one of the first essentials for its success; that the success of such a program would depend on the support and cooperation of everyone concerned, in this case the entire industry; that it would require a long time, a great deal of work and considerable expense before any real values could be felt.

As a result of that symposium, this Institute passed a resolution requesting a Budwood Program. Later in the same year the Florida Citrus Production Managers Association arranged for a discussion of the Texas Budwood Program before the Florida State Horticultural Society. By resolution the Society also favored a program and immediately appointed a committe to work out a general policy of guidance and get a program started.

Sixteen months later the educational campaign was well under way, the State Plant Board had been designated to administer the work, Plant Board officials had added the necessary details for procedure to the Statement of Policy. These had been approved by the Committee; $12,000.00 had been appropriated by the State Cabinet for land and equipment; the land had been cleared and planted with test trees. The selection and testing of the first group of candidate trees was started and the Program was officially in operation.

Each year since that time I have come back here to where it all started to give you a status report on your Program. These reports in most cases confirm the predictions made by the members of the symposium long before the Program began. As to education, dozens of talks have been presented before citrus growers. The state's press and citrus magazines have all presented numerous articles. Films, slides and specimens of the citrus virus diseases have been exhibited all over the state by all our service agencies. The Extension Division has done an outstanding job in publicizing this Program and deserves special credit. The two talks you have just heard by Dr. Perringer and Dr. Cochran are an example of the close relationship between the Program, research agencies and the Extension group. Today, as a result of this educational campaign, our citrus growers have learned some basic facts of the nature of citrus viruses.

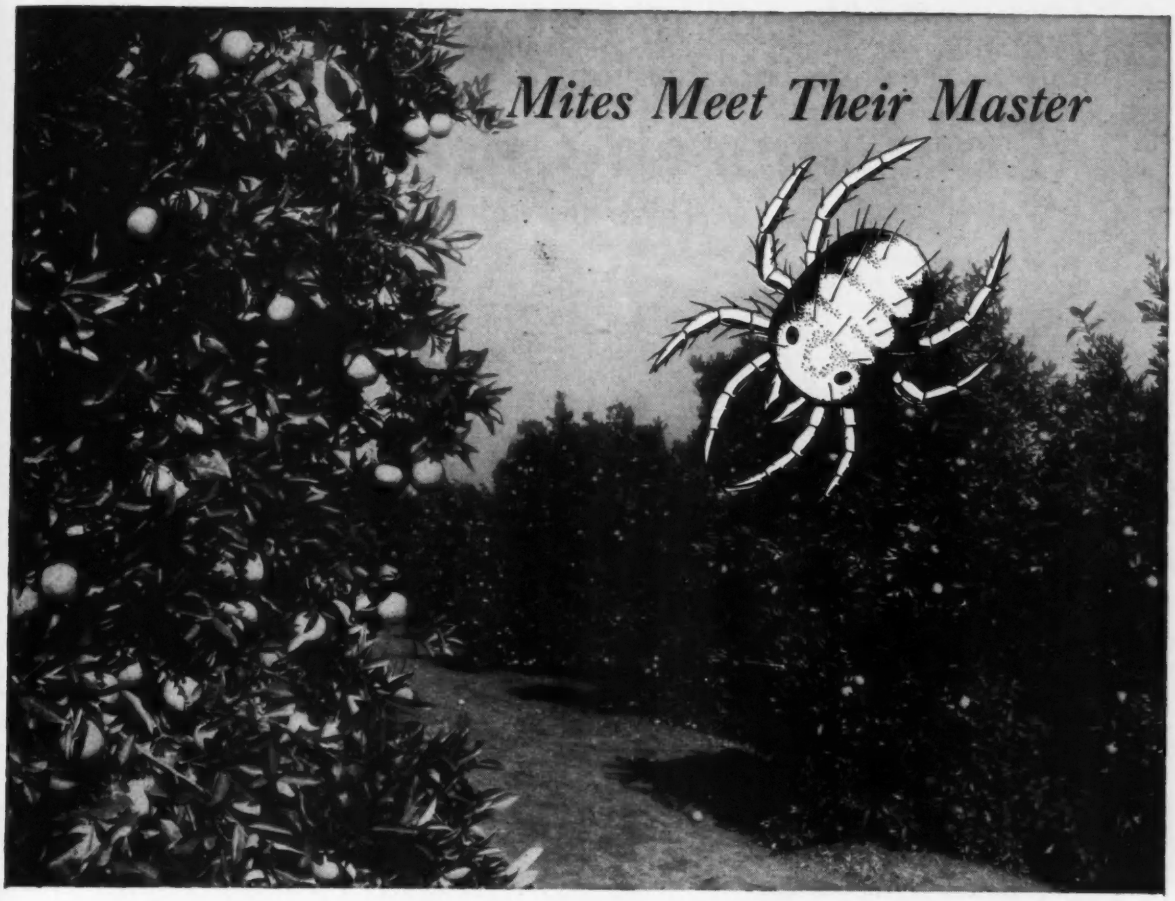
First, that with one exception, Tristeza, which can be spread by insects, that they are transmitted almost entirely by budwood. Second, that the effects of these diseases in many cases do not manifest themselves for many years. Third, that because of the latent nature of citrus viruses, fine looking but diseased nursery stock can be grown from apparently healthy trees. Fourth, that the early fruiting qualities of some young trees are in reality due to the effects of virus shock. Fifth, that healthy appearing mature citrus trees can be symptomless carriers of viruses and would produce trees marked by severe virus reaction on other rootstocks. Sixth, that the best control of the tremendous losses occurring from virus disease is prevention.

As to the other predictions made by the members of the original symposium, we have had the complete cooperation of the entire industry. I can testify to the fact that they were right when they said there would be a great deal of work involved, and the Plant Commissioner can testify to the considerable expense predicted. We have been spending about $25,000.00 a year on this Program and in the last two years this has come up to about $30,000.00 as the Program has expanded.

One year after it was started I told you that those of us who worked with your Program considered it the most complete, the most comprehensive and generally the best of its kind anywhere. Today this is a universally acknowledged fact anywhere in the world that citrus is grown. From its mass indexing of trees of all the commercial varieties grown in Florida across a large number of rootstocks, this Program has accumulated more actual data as to the occurrence of virus diseases in citrus than has ever before been known.

When we started this Program, we knew that Tristeza and Psorosis were present in our trees and we knew that Orlando Tangelo trees were subject to attack by a third virus. In 1955 as the results of bud transmission tests of candidate trees on Orlando Tangelo began to accumulate, we began to realize that finding trees completely free of viruses would be much more difficult than anyone had imagined. 72% of all the trees entered during the

(Continued on page 18)



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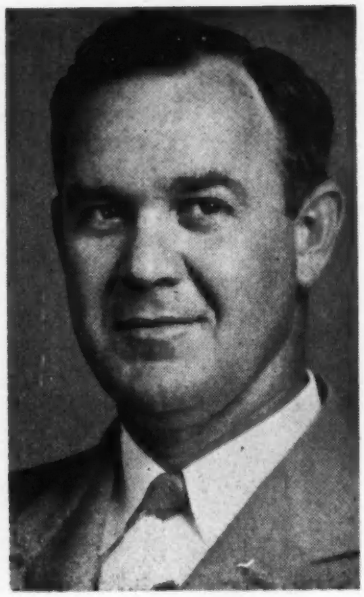
Some Suggestions For Handling

Cold Injured Citrus Trees

This Fall And Winter

- - - By - - -



FRED P. LAWRENCE
CITRICULTURIST
FLORIDA AGRICULTURAL EXTENSION SERVICE

"Citrus trees are tender subtropical, but the most successful areas of commercial production are, in general, near the highest latitudes at which their extensive culture is possible. It thus arises that in almost all the principal citrus-producing sections of the world the trees and fruits are subject to more or less damage by occasional freezes." This quotation from Chapter 18, Vol. II of "The Citrus Industry" by Webber and Batchelor might lead one to believe that it would be rather simple to turn to the literature and pick out complete and detailed information about management of cold-damaged citrus trees. Actually, there is very little recorded information on the subject. What we will present is a compilation of reading the available research records, information gained through talking with growers and research workers and a limited amount of personal experience.

A look at the records reveals that a severe freeze has occurred approximately every ten years in Florida, during the last two centuries. All of these freezes were not of equal severity and it is not to be construed that citrus growing in Florida is a hazardous undertaking. Quite the contrary. It is, generally speaking, a lucurative business and actually only twice in our history has the entire industry been acutely hurt by devastating freezes. These were the winters of 1835 and 1894-95.

In order to manage freeze-damaged trees for maximum recovery, in the shortest time, one must first understand that the condition of the trees before and following a freeze has a great deal to do with how the tree with-stands the cold and how well it responds to treatment following injury. Dormancy of the tree appears to be the key to the situation. Trees in active growth are much more seriously injured by cold than those which are dormant. This conclusion is based on the wide experience of growers in many localities and very graphically substantuated by my co-worker, Jack McCown, in his survey and study of the 1957-58 damaged.

In his observations following the freezes of the past winter it is clearly shown that any treatment which stimulated tree growth in the late fall or winter lead to injury and should be avoided. This should certainly be the case in the management of groves during the remainder of this year.

Some operations, if continued in the fall, are believed to stimulate trees and cause them to break dormancy or certainly to delay their going dormant.

Some of these are **irrigation, cultivation, fertilization, late oil sprays** and **pruning.** Bear in mind that some judgment must be exercised on the part of the individual grower in withholding such treatments—certainly not to the point of detriment to the trees. This is especially important in regard to water. Trees **suffering** from lack of mositure in freezing weather are more severely damaged than those with an adequate water supply. In regard to these practices then—the key word should be **adequate:** avoid stimulation. During the remainder of this year, citrus trees, even those which came through last winter's freezing temperatures with little apparent damage, need the most careful attention in order to produce the best possible crop and to enter the coming winter in the best possible condition. Research shows that healthy trees, those free of viruses, deficiencies, insects and disease, go dormant earlier and remain dormant longer than weak ones. It follows then, that these less vigorous trees are invariably more seriously injured by freezes and slower to recover than those in a healthy state.

The question arises—what then would be a good cultural program for the remainder of the year?

Pruning should be completed by September because it weakens the trees and stimulates new growth. Ordinarily, any further cutting should be delayed until early spring when the danger of freezing weather has passed.

This year there are many older trees that very likely are not going to recover to the point where they will once again be a financially sound investment. Such damaged trees should be bulldozed and replaced. An exception to this would be trees that were healthy prior to the freeze. These, left until spring, should be sawed off at ground level and the root sprouts budded.

Young trees that were cut off near the ground should be trimmed to a single stock, but no later than September. Growers who have experienced previous freeze damage and research personnel seem to agree that no live wood should be removed after mid-September.

Fertilization is always a complex practice. The question frequently is asked as to whether dormancy can be induced by fertilization. The best answer available is that on normal mature trees receiving adequate amounts of fertilizer it is doubtful; however, by changing fertilizer dates, rates, and ratios, trees can become "hungry". This situation affects dormancy — particularly in young trees sensitive to timing.

At this time some groves are wet and some are very dry. Because of this, no specific fertilization recommended can be made. In wet groves the best practice seems to be to keep trees growing through the normal September flush in order

to have them in the best condition by October. Slacking off in July and August might create the situation of "hungry trees" in September and set up the grove to be damaged in cold weather by late fertilization.

Dry groves are the real problem. If no appreciable amount of rain has fallen or no irrigation applied after the last application of fertilizer, it seems best to make no further additions.

There is no literature to substantiate the theory that potash will harden trees for the winter and insofar as can be ascertained no research workers are recommending it.

Irrigation, to be effective, means simply that soil mositure supply must be maintained. Trees should not be allowed to wilt, particularly during October and November. There are indications that irrigation will pay bigger dividends during 1958 than any other year in recent years.

In **spraying,** each grower will have his own problems in insect and disease control. Pamphlets are available to assist in diagnosing and solving these problems. One caution—avoid oil sprays, nutritional sprays and chelates after mid-August.

Also to be avoided is deep **cultivation** or plowing. There is some evidence that the root system of freeze damaged trees is also adversely affected—in which case deep cultivation would only aggravate the situation.

Fire hazards can be eliminated by plowing adequate fire guards and by chopping the cover crop. Leave the cover crop in the topsoil to avoid wind erosion and sand blasting of the trees. It is a good practice to chop the cover crop by mid-October but if the moisture supply is ample at that time, the crop may be allowed to stand another 15 to 20 days.

All young trees should be banked early with trash-free soil — also those older trees that were severely damaged should be banked during the first 15 days of Novmber. The larger the acreage involved the more urgent the need to plan ahead to meet the November 15 deadline.

One last bit of advice—when you have done all that is humanly possible to prepare the grove for this coming winter, pray for warm weather.

The citrus crop in older groves in St. Lucie County is estimated at good to extra by Chas. D. Kime, county agent.

Letter To The Editor

Editor
"The Citrus Industry"
Bartow, Florida.
My dear Mr. Frisbie:

I was much interested in Mr. Randall Chase's fine article which appeared in September 1958 issue of "The Citrus Industry". A very valuable contribution indeed.

I will be looking forward to spirited editorial comment from you from time to time regards the grave dangers of permitting some certain fruit buyers, principally processors, whom last season were reported buying MEXICAN ORANGES which country is notorious for FRUIT FLIES.

These few dollars gained and at the great risk of a single infested orange somehow escaping the close inspection, supervision and trestment by the U.S.D.A. COULD QUITE CONCEIVABLY START A THIRD GRAVE AND COST INFESTATION.

Adverse publicity might put a stop to such business—very bad and risky business. This gread industry of ours worth probably a BILLION DOLLARS should not be subjected to any such dangers and especially since the small amount of personal gain involved is to very small.

With kind regards.

Sincerely,
Donald J. Nicholson.

CITRUS INDUSTRY FACING YEARS OF PROSPERITY

Tampa — The Florida citrus industry is facing "several years of sound prosperity" if it adopts new and stronger concepts of marketing and merchandising to assure the grower a large share of the consumer dollar, John T. Lesley, general manager of the Florida Citrus Exchange, has declared.

Lesley said that he has found "a very high level of optimism" throughout the citrus belt.

However, the citrus veteran said, in order to achieve this "sound prosperity" the industry will have "to adopt a more adequate and scientific marketing and merchandising setup, designed to put a good quality product before the consumer, and at the same time assure the producer the top dollar for his output."

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Five Years Of . . . BUDWOOD CERTIFICATION

(Continued from page 14)

first year of the Program were positive for Xyloporosis virus by the Orlando Tangelo tests. This figure has been confirmed by readings just completed on trees entered in the Program in 1954. This was the first time that this particular test had been applied to relatively large numbers of apparently healthy trees. Knowledge of such high incidence of this virus came as a surprise and a disappointment to our growers and particularly to the participants in the Budwood Program. However, our nurserymen accepted the situation, began the submission of additional trees to replace those lost from Xyloporosis and began intensified propagation of those trees found to be free of this virus.

Because of this new information, we asked that the Committee make several changes in the Program's policy. One was to allow the Plant Board itself to begin to select and test trees in addition to those submitted by participants. Since such a high percentage of positive trees might indicate the possibility of seed transmission of this virus, we also asked to be allowed to select for trueness-to-type trees to be used as standard commercial seed sources and to test these seed source trees for virus infection just as we do trees to be used as sources of budwood. We also asked that the policy be amended so that trees free of Tristeza and Psorosis could be registered as such until additional trees free of Xyloporosis could be found and propagated. We asked that the restriction in the Statement of Policy regarding bud mutation be modified because in some varities some degree of bud mutation could be found in every tree. All these recommendations were approved by the Committee and have become part of our operating precedure. No one can doubt that trees entered in the Program are a good representative cross section of the best commercial trees in the state. They were first selected by the grower from blocks of trees known to be high in quality and production and then screened, inspected and tested by the Plant Board. None of these trees showed any recognized symptoms of virus infection when they were entered, yet we know by actual bud transmission tests that 5.5% of these trees are infected with Tristeza virus, that 6.7% are infected with Psorosis, that 71.4% are infected with Xyloporosis virus and we have every reason to believe that 40 to 50% are infected with the virus Exocortis. This gives us a total positive virus incidence of at least 124% from the best trees obtainable in the largest citrus producing area in the world. This does not men that all our trees are infected with viruses. It does mean that some of our trees are carrying two or more viruses, even trees that appear to be perfectly healthy. We believe that these apparently healthy trees would produce higher yields, live longer, be more cold and drought tolerant, and in general be more profitable to the grower without these viruses.

Two years after this Program was started, I was able to tell you that it was the largest program of its kind. Since that statement was made, its size has increased by nearly 300%. Today the 95 participating growers and nurserymen produce 31% of all Florida citrus nursery stock. Not all their propagations are from certified budwood at present, but no doubt will be in the very near future. Our records show that 573 of our parent trees are free of Tristeza and Psorosis. 136 of these are also Xyloporosis-free. There are 465 additional candidate parent trees in various stages of indexing. There are 43 scion groves propagated from registered bud sources totaling 16,405 trees. Some of these groves are four years old and beginning to supply large amounts of budwood. Since the Program started, participants have propagated 420,532 buds from Psorosis and Tristeza-free sources. 194,474 of these are also Xyloporosis-free. 262,743 of these buds went into propagation of registered stock. The balance of 157,789 buds were used by participating growers for propagation of their own commercial plantings without regard to registration of the progeny. Most of the past five years have been taken up in finding these sources. Now that they have been found, their multiplication will be very rapid.

This year we asked that the Committee be recalled to consider additional problems. One of the restrictions of the original Statement of Policy provides that trees within 35 feet of the candidate tree

(Continued on page 25)

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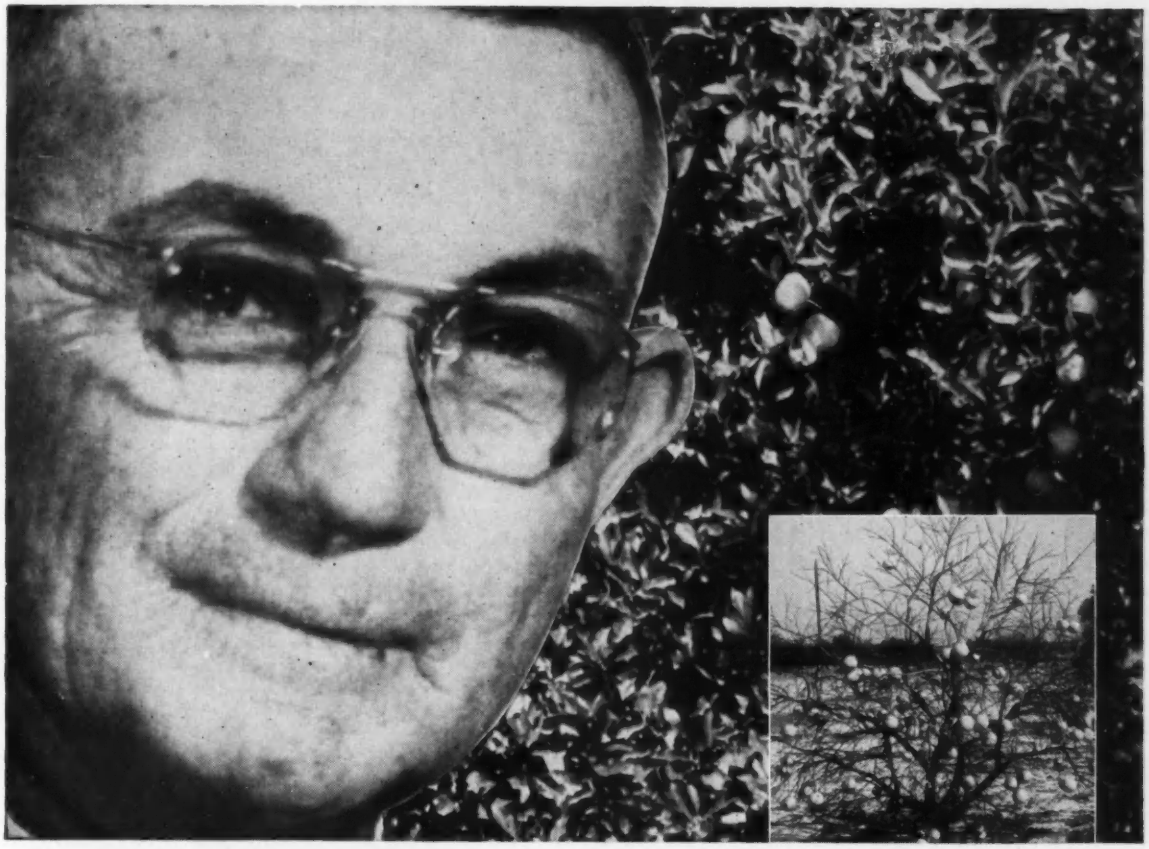
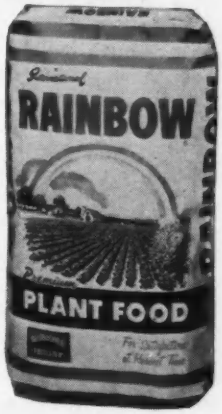


RAINBOW cuts freeze damage

CITRUS TREES BOUNCE BACK FAST—That's what W. P. "Bill" Davis of Wauchula, Hardee county, has to say about Rainbow Plant food.

By fertilizing groves with Rainbow containing MEM, Bill Davis and hundreds of other Florida growers are cutting the risks and losses of freeze damage. When other trees are dropping leaves and fruit because of freeze damage, (see inset photo) Rainbow-fed groves are lush-looking and heading for better yields.

Get in touch with your nearest Rainbow representative ... ask him about Rainbow and the extra profit protecting ingredient, MEM.



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MUTUAL PLANS FOR THE 1958-59 SEASON

(Continued from page 6)

this: When there are problems or when there is trouble, the industry turns to Mutual for information and guidance. For illustration, a little over two years ago, the Mediterranean fruit fly infestation posed a dire threat to the economy of Florida's great citrus industry. Not only did Mutual serve as a coordinating agency to assist in the development of the eradication program, but more importantly, threw its resources of men, money and ideas into action on a moment's notice, with the result that a serious situation was resolved without undue confusion or furor. Compare, if you will, this handling with that which prevailed during the earlier Medfly infestation in the late twenties.

Yes, in addition to its day by day routine projects, Mutual is prepared to step in quickly and effectively during a time of crisis. Look back for a moment at the events of this past season, the freezes of mid-December and the following months brought about a situation that could have resulted in absolute disaster for the industry. Panic and hysteria threatened to take their toll, but Mutual's calm and realistic evaluation and effective leadership assisted in bringing order out of threatening chaos.

Florida Citrus Mutual, by nature, must deal to a great extent with problems. Other organizations in this great industry are more or less static in that they have a charted course of responsibility to deal in specific functions. Mutual's problems change from day to day, even from hour to hour, and they require constant adaptation to meet these changing conditions. Let me illustrate. Mutual's evaluation of supply and demand situations is a continuing function, for the factors that make up supply and demand may change from day to day. Largely through Mutual's work in this field, our growers now have an awareness of the importance of having the real facts relating to supply and demand as the only true basis for wise marketing decisions.

Now, what about next season? The marketing outlook for Florida citrus in the coming season is extremely favorable, based on the known relationship between present supply and demand factors. This favorable marketing opportunity can be realized only with the industry working together through their grower organization.

Actually, Mutual's primary function is to take whatever action is necessary to assure that its grower members receive their fair share of the consumer's citrus dollar. Mutual's day to day programs are based on this objective. It has been said over and over again that the Florida citrus grower is the best informed agricultural producer in the world. This is a grower accomplishment brought about through their own organization, Florida Citrus Mutual.

Mutual as well represents its membership on legislative matters. No one of us has the time or the ability to analyze and take action on the various legislative proposals and governmental regulations which play such a vital part in our industry. Mutual is fortunate to have as its legislative counsel a specialist in this field. We are carrying forward a constant activity aimed at preventing the adoption of oppressive bureaucratic regulations that would unduly penalize this industry.

Now, here are some of the things that Mutual can carry through during the 1958-59 season:

1. We will continue to represent our growers and the industry at all levels.

2. We will refine and have available for our membership Mutual's dynamic and useful price guide information.

3. We will ask shippers to voluntarily cooperate in supply adjustment programs when faced with possible market gluts.

4. We will do everything to bring about radical new uses for citrus by-products. Mutual is a member of the Chemurgic Council which has done much to find new uses for many other agricultural products including soy beans and cotton.

5. We will do everything possible about our new problem — citrus imports. Insofar as we do not want additional citrus diseases and pests to be brought in by these imports, there are now regulations, State and Federal, for inspection of these imports and we will follow through to see that they are strictly enforced.

6. We will constantly evaluate the over-all supply and demand situation.

7. We will further the work we began five years ago in the export field.

8. We will advise our growers of latest culture practices or developments.

9. We will continue our efforts to enable our citrus growers to bring quality citrus from the tree to the consumer.

10. We will continue our efforts for appropriate industry-wide product identification.

11. We will endeavor to create and encourage more plus markets for Florida citrus.

12. We will continue to cooperate with other industry organizations to the end that the Florida grower will always receive his fair portion of the consumer's citrus dollar.

13. We will broaden our northern and mid-western market coverage to supply our growers with even more vital information.

14. We will maintain a grower committee to work with the Florida Citrus Commission in bringing about an even more effective advertising, merchandising and research program.

I wish I had the time to discuss in more detail the various activities and programs that we have planned. I assure you that it will be our aim in the coming season to refine and improve our services to the end that the grower and all others having an essential part in this great industry, may receive maximum benefits.

General's Ambassador-at-Large

Help yourself to a pleasant moment by browsing through the Sun Dial when it arrives with the telephone bill. You'll enjoy its interesting and amusing capsuled articles.

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"We have found ORTHO® field service to be outstanding" reports J. B. Huppel, Production Manager, R. D. Keene, citrus growers headquartered at Winter Garden, Florida

"In our operations we have found your field service and technical advice to be outstanding and very helpful," says Mr. Huppel, shown below, left, with ORTHO Fieldman Cliff Sutton. "This has given your ORTHO products a real character. Surely, a company is known by the men it keeps."

Leading Florida Citrus Growers use a *complete* ORTHO program—here's why:

When you buy the ORTHO program, all the personal, on-your-ground technical advice and services of your ORTHO Fieldman are provided gladly and without any extra charge. Too, with ORTHO, you're associated with the leader. ORTHO Research first developed highly refined petroleum oil sprays in the form of new type emulsions and ready-mixes. Under such brand names of VOLCK Soluble, and Florida VOLCK these oil sprays today are known and respected by growers the world over. Include these top-choice oil sprays in your control program, too.

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West Palm Beach — Perry L. Sparkman

The Lime-Avocado Story

By Harold E. Kendall---(As Told to Herb Mosher)

Mr. Herb Mosher
P. O. Box 137
Gotha, Florida
Dear Herb:

Down here in the Redlands we have had a very rainy, hot summer. This has helped to bring our avocado trees out in excellent shape, and if we struggle through this year with a 25% crop, we will probably wind up by getting a bumper crop next year. Although we have had a very light crop of the summer West Indian avocados here, our prices have not been very high due to the fact that we have had considerable competition from Cuba and also California has had their biggest crop of avocados in many years.

Still, when we start to move our late summer and fall varieties of avocados, we expect to get pretty good prices for them and undoubtedly the growers will get about as many dollars back for the lighter crop as they would have for a big crop. Actually, beginning about October 15th, we should begin to move Booth 8 and Lula avocados in pretty good volume and I think most growers who have any of these two varieties will do very well on them.

The growers with older groves, whose trees were quite high, have a pretty fair crop up in the tops of their trees, and I think those growers are going to come along in pretty good shape. The growers who had young trees and were from 1 to 8 years of age, are pretty evenly without fruit due to the fact that the frost damaged the bloom buds all the way up to about 8 to 10 feet high. Still you can't underestimate the productivity of Florida and this Redland area where we grow our avocados is another example. Give us high enough prices this fall, and you will see a lot of avocados come out of these woods.

In our lime industry however, we have a somewhat different picture. Many of our lime groves were 20 to 25 years old and these had trees in fairly poor condition so they were susceptible to the cold in February. Many of these groves were either killed outright or damaged so severly that they are not going to be of much economic importance in the future. However, fortunately, a good deal of our acreage was in the younger groves from 1 to 10 years of age and these groves have come through in pretty good condition.

Although they got a good deal of cold damage extending back to wood ¾ inch in diameter, these trees have made a remarkable recovery and we are now picking about 30 to 40 percent as many limes as we did last year at this time. When you consider that last year we were getting about $1.50 per bushel and now we are getting between $4.00 to $5.00 per bushel you can well understand that growers that do have limes now are going to do all right this year.

Since our lime trees have been blooming more or less irregularly ever since the first of March, we will have a regular supply of limes from now on through the fall and winter. I think you can start taking down your "Lemons only" sign as you will be seeing more limes in the restaurants and stores from now on. We just price them out of our local markets along in April, May and early June when limes get up to $22 per bushel to the grower.

I believe that probably half of the acreage (Limes) was so severly damaged or killed that it won't be in production in the future. This means that we should get fairly good prices for the limes which we will have on the trees during the next several years. It also means that those growers who have good groves and take good care of them will undoubtedly come out pretty well profit-wise.

We have had a tremendous demand for our frozen lime juice and frozen limeade this summer. Even though the weather up North has been fairly cool and the demand for lemonade has not been quite up to expectations, there has been plenty of room in the frozen food boxes for retailers to stock limeade and push it and as a result we have had a very good movement this year. With orange juice very high in price, most chain stores have not been pushing this and have been looking for other good items to emphasize, and as a result limeade has come into its own pretty well this summer. We really have a good product in frozen concentrated limeade and I hope that you are able to reach your hand into the frozen food boxes every once in awhile and get a good can of limeade. I think you will enjoy it.

Although the price of raw land down here in the Redlands has gone up to around $2000 to $2500 per acre, we are still not discouraged and are trying to do a better job of producing limes and avocados more efficiently so that we can stay in business here. We have a good industry, and a good place to grow avocados and limes as well as a good place to live, so I think we will be here for sometime even though the bungalows are starting to creep close to us.

On avocados we are concentrating on the Booth 8 and Lula varieties which are heavy bearers and regular bearers, so that we should be able to raise these profitably each year. With improved selection of lime trees, we are not only getting better producing trees, but we are learning how to produce more bushels of limes to the acre, so that we will be able to keep our cost down and at the same time increase our production efficiently.

As far as mangos are concerned, we had a very light crop down here this year. The cold really did hurt a lot of trees and it will be two to three years before we get a good mango crop again. They just didn't like the cold weather we had in February.

Harvey Gossman died about a year ago, but Otis Gossman, Sr. and Jr. are still here and very active in the lime and avocado business. I see Luther every day or two, and just this week we had an Avocado & Lime Commission meeting. He seemed to be in pretty good health, and I'm sure that he will be around with us for quite some time.

The heavy rains which you saw written about in the Miami papers were mainly to sell newspapers. We didn't have any damage to the groves although there were a few lime plantings on some blocked glades, that one or two growers screamed about. Most of our lime and avocado groves are planted on higher ground, and these weren't hurt at all, in fact they were benefited by the rains here this summer.

We are not worried about lime importations from the Bahamas, Cuba or other West Indian islands

(Continued on page 26)

CITRUS INSECT CONTROL FOR OCTOBER, 1958 . . .

(Continued from page 3)

The list of materials recommended for red spiders on citrus now includes the newer miticides Tedion, Trithion, and Kelthane; the older miticide Systox; and the oldest of all: DN Dry Mix No. 1. The most effective of these is Tedion. This miticide is recommended for use only on non-bearing trees or trees without fruit because no residue tolerance has been established for any food crop. However, a small quantity will be available for grower trial under an "experimental sales permit." Only this specially-packaged small quantity may be used on fruit.

Tedion is a slow acting miticide with exceptionally long-lasting properties. It is ideal as a preventative treatment, but injurious numbers of mites may remain for as long as 3 or 4 weeks if it is applied to high populations. Where mites are very numerous, Tedion should be supplemented with a quick-killing agent such as parathion, TEPP, or Chlorobenzilate. The mixture of ½ pound of Tedion plus ½ pound of Chlorobenzilate per 100 gallons is very good because it combines rust mite control with quick and long-lasting control of spider mites.

Trithion is the second most effective miticide. It may be used at any time up to 14 days before harvest. The recommended dosage of Trithion is 1.0 pound of the wettable powder or ½ pint of the liquid per 100 gallons. Trithion combines quick clean-up with good residual properties against red spider and is also fairly effective against rust mite. Where rust mite is apparently absent or at only moderate levels, Trithion may be used without zineb, but zineb should be included if rust mite is severe.

Kelthane is as effective as DN Dry Mix No. 1 at its very best and is more reliable than DN during rainy weather. The recommended dosage of Kelthane is 1.0 to 1.5 pints of the liquid or 1.0 to 1.5 pounds of the powder per 100 gallons. The higher dosage is preferred where mites are very numerous at the time of application. Kelthane is of some value against rust mite, but is not sufficiently effective to be used without a supplement for control of rust mite.

DN Dry Mix No. 1 at 2/3 pound per 100 gallons is most effective when applied to low populations and before eggs become numerous. It should not be used when the temperature is above 88 degrees and should not be mixed with lime-sulfur or other alkaline materials. The mixture of DN and parathion sometimes causes a leaf drop, and some injury may develop where a drop of spray dries on the lower half of the fruit, especially on Hamlin and pineapple oranges. A DN-sulfur dust may be used against light infestations, but is not so effective as a good spray.

Systox at ½ to 1 pint per 100 gallons is safe to use on any variety and may be applied up to 21 days before harvest. Lower dosages of Systox may give a good clean-up, but a shortened period of control. Like all miticides, Systox is most effective during cool weather.

RUST MITE CONTROL

Several materials may now be used for rust mite control. The most effective is zineb, which should be used at ½ pound per 100 gallons or 3 pounds per 500 gallon tank. Zineb may be used with any materials listed for red spider control. However, experimental results have indicated that DN Dry Mix No. 1 is less effective with zineb than with sulfur.

The second most effective material against rust mite is Chlorobenzilate. This miticide is also compatible with any of the materials listed for red spider control, but should not be used in any alkaline spray. Chlorobenzilate should be used at not less than ½ pound of the powder or ½ pint of the liquid per 100 gallons. At this dosage it will also give a quick kill of purple mite, but no lasting control.

Wettable sulfur at 10 pounds per 100 gallons and Trithion at 1 pound have given about equal control of rust mite.

GRASSHOPPER CONTROL

Grasshoppers frequently become numerous on the cover crop during late summer and in the fall and then feed on citrus when the grove is chopped. They also frequently migrate into citrus groves from adjoining grasslands and brushy areas. Several species of hoppers attack citrus and all can be very injurious. Young trees may be partially or even completely defoliated in a few days. Parathion at 3 pounds of 15 percent material per acre will give a quick clean-up that is often sufficient. When hoppers are moving in from adjoining areas, however, control is only temporary. Chlordane, toxaphene, lindane, aldrin, and dieldrin are materials that give longer control.

PLANT BUG CONTROL

Plant bugs often develop on citron melons and then feed on the ripening citrus and cause it to drop. All varieties of citrus are attacked, but early varieties are usually most seriously affected. Plant bugs may be controlled with the materials used against grasshoppers.

Details of spray schedules and the various materials used will be found in the "Better Fruit Program" and this should be consulted to determine which materials may or may not be combined. For further information, consult the Citrus Experiment Station at Lake Alfred or Fort Pierce.

Directors Named For Florida Citrus Exposition....

Directors for the 1959 Florida Citrus Exposition were nominated at that organization's annual membership meeting.

The 25th industry show scheduled for March 7 through March 14, promises to be representative of the entire state citrus industry.

The new directors announced include: T. V. Snively, Jr., H. E. Apple, C. C. Rathbun, W. W. Giddings, John Kuder, W. F. Lawless, R. C. Lewis, R. D. Pope, Sidney I. Smith, John A. Snively, Jr., Jack M. Berry, Tom Turnbull, Archie Campbell, R. W. Wetherington, L. W. Dunson, Ralph P. Thompson, W. E. Rynerson, Frank Alexander, Robert K. Cooper, E. L. Davis, all of Winter Haven.

Homer Hook and Bob Rutledge, Lakeland; A. R. Updike, Lake Wales; Harry Di Christina, Davenport; Thomas Quimby, Orlando; R. V. Phillips, Haines City; Frank J. Poitras, Plymouth; Key Scales, Weirsdale; J. Dan Wright, Orlando; Harry Walker, Orlando; Frank Heddrick, Orlando; Hank Craig, Orlando; Bruce Skinner, Orlando; Andrew Spade, Jr., Tampa; Ed H. Price, Bradenton; King Kendrick, Dade City; Jules Bragin, Clearwater; John T. Lesley, Tampa; J. R. Graves, Wabasso; George I. Fullerton, Oak Hill; Ben Hill Griffin, Jr., Frostproof; Elgin Bayles, Sebring; Doyle Carlton, Jr., Wauchula; and Robert Sorrells, Arcadia.

Associate directors named include Gov. LeRoy Collins, Nathan Mayo, Commissioner of Agriculture, Tallahassee; and A. B. Michael, Wabasso.

Florida leads the world in grapefruit production and is responsible for about one third of the world's supply of oranges, tangerines and grapefruit, according to a tabulation by Zack Savage.

Trends In The Fresh Fruit Industry . . .

R. V. PHILLIPS, MANAGER
HAINES CITY CITRUS GROWERS ASSN.

Mr. Chairman, Ladies and Gentlemen: I have been looking forward to this date and I am ashamed to tell you that this is the first time I have attended one of these meetings. This is your Silver Anniversary, but I assure you I will not wait until your Golden Anniversary to attend another meeting. It just so happens that this meeting always comes at a time when I am on vacation, but this year I took my vacation a little early, and it just fits in with this program. I appreciate your asking me to come here today to talk to you about "Trends in the Fresh Fruit Industry". I assure you I will not take more time than alloted me. However, this is a subject which needs much time and thought given to it, and I hope that the few remarks made today might leave you with some food for thought on the subject.

Even though my entire work in the fruit industry has been confined to the fresh fruit phase I, nevertheless, am extremely interested in the processed industry, as the firm I represent has more than a half-million dollars invested in a processing plant which packs single-strength, concentrate, and sections. The very able manager of this plant, Marvin Walker, is the speaker who follows me on this program. I represent my association as a member on the Board of Directors of Mr. Walker's processing plant, and approximately one-half of our grower's fruit goes there. Hence, you can see that I must now be interested in the processing of citrus as well as the fresh fruit phase of it. Needless to say, it is most imperative that all growers be interested in all methods of outlets for our citrus, but I came here to talk with you today about the FRESH FRUIT TREND.

The Florida citrus growers are doing a better job of marketing their grapefruit and tangerines through the fresh fruit channel than they are doing with oranges. However, there is still room for improvement for fresh fruit sales in grapefruit and tangerines. But warning signals are up for sales of fresh oranges from Florida. Shipments of oranges in fresh form have declined almost every year for the past ten years. In the 1946-47 season we shipped over half the crop fresh; this past season we shipped less than 19%. As a matter of fact, we shipped more total boxes fresh in the 1936-37 season—21 years ago—than we did last season. Of course, we all know that the big reason for this decline in fresh sales had been the rapid growth of canned product sales, especially sales of frozen concentrate in the past 10 years. This has been a great thing for our industry, and canners and concentrators have done a tremendous job in taking care of our great production increases and distributing Florida orange juice to millions of people who never tasted it before.

But, the fact remains that a fine growth in processed oranges does not justify the alarming decrease in fresh sales. Our industry needs a strong and healthy fresh fruit market to provide the grower with more than one outlet for his fruit. But the trend we have seen in recent years makes it crystal clear that fresh orange shipments are dropping down to the point where something has to be done to keep this outlet alive.

Here I have prepared a placard showing the trend in both fresh fruit and process utilization. You will note three seasons have been used at ten year intervals, and I did not show last season's utilization because of the freeze.

We used to sneer at the canners as dealers in culls and rejects, but we've had to eat our words—and a lot of culls and rejects too. The tail is very definitely wagging the dog now, ladies and gentlemen; and it's time for the dog to start scratching!

What must we do? Well, let's get down to the fundamentals. What does the housewife look for when she buys oranges? She wants a firm, good-looking fruit that seems to hold the promise of lots of sweet juice when she peels it or squeezes it at home. What I have just said sounds like an appeal to return to high quality fruit selection, doesn't it? Well, that's absolutely right. I think we have to start improving our packs right down the line. We must realize that our backs are not far from the wall, and that the best quality of shipments is our salvation. We've been giving "lip service" to quality long enough. Now, let's put it into action.

This isn't going to be easy, and before it is done you will hear a lot of controversy about it as to where the line should be drawn on solids and ratio. But, it simply means that we will have to restrain ourselves from selling all our high solids fruit to the concentrators and ship some of it FRESH. We may even have to grade fruit for fresh shipments, depending on solid contents, and I especially refer to oranges.

(Continued on page 27)

Total Boxes Oranges and Grapefruit Shipped Through Fresh Fruit Channel As Compared to Total Utilized Through Processed Channel

Year	Total Production	Total Boxes Shipped Fresh	Percent	Total Boxes Processed	Percent	Total Boxes Used Other Methods	Percent
			ORANGES				
1936-37	19,500,000	16,722,000	86	620,000	3	2,158,000	11
1946-47	53,700,000	29,170,000	54	19,885,000	37	4,645,000	9
1956-57	93,000,000	17,156,100	19	68,125,000	73	7,718,900	8
			GRAPEFRUIT				
1936-37	18,100,000	10,579,000	58	6,723,000	37	798,000	5
1946-47	29,300,000	9,065,300	31	15,865,500	54	4,369,200	15
1956-57	37,400,000	15,556,800	42	19,042,100	51	2,801,100	7

NOTE: Total boxes used other methods shown above represent INTRASTATE NON-COMMERCIAL, ANY ECONOMIC ABANDONMENT, ETC.

Five Years Of . . . BUDWOOD CERTIFICATION

(Continued from page 18)

must also be free of viruses. This is unworkable because the adjacent tree could have Xyloporosis or Exocortis virus and still be symptomless. The only way we could determine the virus status of adjacent trees is by bud transmission tests which are impractical because of the quantities of tests trees it would require. As it was worded, the Statement of Policy implied that adjacent trees were virus free. Some growers, using all their available certified budwood, then used budwood from adjacent trees as their next best source. In at least one such case the adjacent trees were infected with Psorosis. The Policy now reads that the adjacent tree is "apparently free from viruses on the basis of visual symptoms to make it clear to the grower that the adjacent trees have not been tested and therefore we could not be certain as to their virus status.

The Committee also gave us authority to add two new research developments to our standard operating procedure. The first of these is a laboratory test to determine the presence of Exocortic virus in citrus. Bud transmission tests on Trifoliata rootstock will still be necessary, however, it is believed that by the use of the color tests we can reduce the time of testing by at least half of the six to eight year period previously necessary. The second development is the use of material treated by means of controlled heat at fairly high temperatures over long periods of time. Present indications are that this is a method of virus elimination in citrus. For the present, the color test will be used by the Program to supplement our own testing and in the case of the heat chamber treated material, to supplement the amount of budwood of some varieties in which virus incidence is very high. Because of our interest in this method and its great potential value to the Budwood Program, reindexing of virus infected material will be carried out by the Program in order to aid development of information concerning the effectiveness of the heat chamber treatment. These new techniques were developed respectively by J. F. L. Childs and T. J. Grant, Pathologists, Sub-Tropical Fruit Field Station, USDA, Orlando.

From the inception of this Program producers of nursery stock were warned that when adequate supplies of Psorosis-free budwood became available, state inspectors would begin to quarantine all citrus nursery stock showing the leaf patterns of Psorosis. The time is approaching when this important step toward the final elimination of Psorosis can be accomplished. Growers were again reminded of this impending restriction by a memorandum from the Plant Commissioner on December 9, 1957, setting a tentative date of January 1, 1960, after which known Psorosis infected nursery trees would be refused certification. Because of the subsequent freeze in which many young registered trees were lost or set back and a great deal of certified budwood injured on the parent trees, the newly formed Florida Citrus Nurserymen's Association has asked for a postponement of this restriction to January 1, 1961. No doubt Dr. Cowperthwaite, the Plant Commissioner, will discuss this in his talk tomorrow.

Psororsis has been present for many years in Florida with great losses resulting from its presence and in the past, little could be done about it. Now that better budwood is available to the industry, the movement of trees carrying this disease into Florida plantings can be eliminated by the simple act of classifying Psorosis as a dangerous disease. This eventually will be done. If the Florida Program had never accomplished anything else, this one thing would more than justify its existence. During the past year the Certification Office has received many letters from growers and nurserymen from all over the state requesting that we send them budwood free of virus diseases. In some cases, these requests were for very large quantities. As it was originally conceived, the Budwood Program does not control any budwood and the ownership of budwood submitted for testing is retained by the participant. From the first discussion of the Committee it was clearly their feeling that the state should not be in the business of selling budwood and the budwood submitted to us for testing was for that purpose only and not ours to give away or sell. Since many growers apparently feel that the program should be able to supply them with at least small amounts of desirable budwood, we have asked the Committee if it was their feeling that we should establish foundation plantings for this purpose. The attitude of the Committee is that they are willing to do what the industry wants and if it is the feeling of the industry that the Plant Board distribute budwood, then we should make provision to do so.

Citrus Processing Meet Set For Oct. 7

New findings on the effects of temperature variations on the storage life and quality of frozen orange concentrate, on the formation of "buttermilk off-flavors" and on materials balances in the concentration of orange juice, are to be reported by USDA scientists at the Eighth Annual Citrus Processing Conference Oct. 7 in Winter Haven, Fla. Studies on the development of color in grapefruit and on research on lemon oil and citrus flavonoids are other topics for discussion.

The conference, sponsored by the Southern Utilization Research and Development Division of the Agricultural Research Service, USDA, is to be held in the Florida Room of the Citrus Building in Winter Haven. The one-day conference, which begins at 10 a. m., is open to members of the citrus and related industries, to research workers, and others interested in citrus processing.

During the morning session, scientists from the Winter Haven laboratory will report results of their investigation into problems affecting the frozen orange concentrate industry.

Dr. Veldhuis, chemist in charge of the Winter Haven laboratory, will close the morning session with a report on the new laboratory building, which is nearing completion.

Increasing production of pink and red grapefruit has stimulated interest in processing this type of fruit, and the nature of the pigments. A. E. Purcell, biochemist from the U. S. Fruit and Vegtable Products Laboratory, Weslaco, Texas, will present "A Progress Report on the Study of Carotenogenesis in Colored Grapefruit" in which he will discuss seasonal development and changes in the carotenoid pigments in grapefruit, distribution of the pigments in the fruit, and mechanism of formation.

Research on lemon oil and citrus flavonoids at the U. S. Fruit and Vegetable Laboratory, Pasadena, Calif., will be described in the final paper of the conference.

FLORIDA STATE HORTICULTURAL SOCIETY

(Continued from page 10)

fee. Manley L. Boss, University of Miami, Coral Gables.

Wednesday Afternoon, October 29

2:00 — A Comparison of Materials for the Control of Wireworms and Other Subterranean Pests of Gladiolus. E. G. Kelsheimer, Gulf Coast Experiment Station, Bradenton.

2:15 — Chrysanthemum Soil Fumigation: Progress Report. Mrs. A. J. Overman, Gulf Coast Experiment Station, Bradenton.

2:35 — Compatibility of Insecticides and Fungicides for Chrysanthemums. E. G. Kelsheimer, Gulf Coast Experiment Station, Bradenton.

2:50 — Insects that Bite or Sting. Lewis S. Maxwell, Jackson Grain Co., Tampa.

3:10 — Notes on Some Insect Pests Affecting Ornamental Plants and on Their Control. D. O. Wolfenbarger, Sub-Tropical Experiment Station, Homestead.

3:30 — Tests on Chinchbugs and the Current Status of Controls. S. H. Kerr, Agricultural Experiment Station, Gainesville.

3:50 — Effect of Variation in Nitrogen Nutrition of Chrysanthemums on Attack by Serpentine Leaf Miner. S. S. Woltz and E. G. Kelsheimer, Gulf Coast Experiment Station, Bradenton.

4:10 — Marketing Flowers Through Mass Outlets. Cecil N. Smith, Agricultural Experiment Station, Gainesville.

4:30 — Sectional Business Meeting.

Thursday Afternoon, October 30

2:00 — Progress in Controlling Botrytis Disease of Gladiolus. R. O. Magie, Gulf Coast Experiment Station, Bradenton.

2:20 — Bacterial Blight of Chrysanthemum. Lorne A. McFadden, Sub-Tropical Experiment Station, Homestead.

2:40 — A New Fungicide for Gladiolus Corm Treatment. R. O. Magie, Gulf Coast Experiment Station, Bradenton.

3:00 — Nematode Investigations on Turf Grasses. Gene C. Nutter, Agricultural Experiment Station, Gainesville.

3:20 — Effects of Soil Mixtures and Nematocidal Drenches on Flower Production of 'Happiness' Rose. S. E. McFadden and S. H. Kerr, Agricultural Experiment Station, Gainesville.

3:40 — Control of Pythium Root Rot of Chinese Evergreen by Soil Fumigation. H. N. Miller, Agricultural Experiment Station, Gainesville.

4:00 — Poison Plants. Julia F. Morton, University of Miami, Miami.

Friday Morning, October 31

9:00 — Effects of Frequency of Fertilization and Lighting Period Duration on Growth and Flowering of Pot-Grown Mums. James L. Taylor, Agricultural Experiment Station, Gainesville.

9:20 — Studies of Nitrogen and Potassium Source Materials for Chrysanthemum Morifolium. S. S. Woltz, Gulf Coast Experiment Station, Bradenton.

9:40 — Preliminary Report on the Nitrogen-Light Intensity Requirements of some Commercially Grown Foliage Plants. James L. Taylor, R. D. Dickey and J. N. Joiner, Agricultural Experiment Station, Gainesville.

10:00 — Effect of Degree of Rooting of Cuttings on Their Subsequent Growth. R. D. Dickey, Agricultural Experiment Station, Gainesville.

10:20 — Eugenia Trees and Shrubs Native to Florida. Edwin A. Menninger, Stuart.

10:40 — Zingiberacea for Florida. Thomas J. Sheehan, Agricultural Experiment Station, Gainesville.

11:00 — Cold Injury of Ornamental Plants—How it Occurs and Protection Pointers. J. N. Joiner, University of Florida, Gainesville.

New Miticides For Citrus— Some Timely Questions And Answers . . .

(Continued from page 13)

pound of Tedion.

4. 1.7 pound of 15 per cent parathion + 5 pounds of wettable sulfur + 0.5 pound of Tedion.

Fall:

1. 1.7 pound of 15 per cent parathion + 0.5 pound of zineb + 0.5 pound of Tedion.

2. 1.7 pound of 15 per cent parathion + 0.5 pint of 1.0 pound of Trithion.

3. 1.7 pound of 15 per cent parathion + 5.0 pounds of wettable sulfur + 0.5 pound of Tedion.

4. 1.7 pound of 15 per cent parathion + 0.5 pound of zineb + 1.0 pint or 1 pound of Kelthane.

21. Q. What are some spray combinations that will control rust mite, purple mite, and Texas citrus mite during fall and winter? (See general comments in answer to Question 20.)

A. 1. Zineb, 0.5 pound + Tedion, 0.5 pound.

2. Chlorobenzilate, 0.5 pound + Tedion, 0.5 pound (Excellent where purple mite is numerous.)

3. W. Sulfur, 5.0 pounds + Tedion, 0.5 pound.

4. Zineb, 0.5 pound + Trithion, 0.5 pint (This is good where rust mite is numerous.)

5. Trithion, 0.5 pint or 1.0 pound.

6. Zineb, Chlorobenzilate of sulfur + Kelthane, 1.0 pint or 1.0 pound.

For further information, consult your county agent or the Citrus Experiment Station at Lake Alfred or Fort Pierce or the Agricultural Extension Service, Gainesville.

The LIME-AVOCADO Story

(Continued from page 22)

at this time. As you know, there is a duty on limes from all of these places, and since they are off shore there is also a transportation problem too. During the early part of the summer and late spring, there were quite a few limes brought in from Cuba, but once the price on limes got down to more reasonable levels, these stopped coming in because of the cost of handling, packaging, transportation duty, etc. And in addition they do have a market on limes right there in Havana.

SOUTHERN DOLOMITE
PALMETTO, FLORIDA
PHONE: BRADENTON 2-1411

TRENDS IN THE FRESH FRUIT INDUSTRY

(Continued from page 24)

Most people use sugar on their grapefruit when eaten fresh. Now, if our promise of sweet juice from oranges is not fulfilled when the housewife cuts the orange in her kitchen, no amount of fancy cleaning, waxing, and wrapping is going to make her feel any better.

And, then I think we've got to tell our buyers that we're shipping better fruit—especially selected for fresh use, and **demand more money for it.** This is the only way we can recover the increased cost of getting the best fruit in the first place. And, by the way, while we are telling them it's better fruit, selected especially for the fresh fruit market, let's tell them where it's from. Let's identify it by stamping thereon the word "FLORIDA", a magic word that is associated with fresh air, sunshine, and gracious living. If this is done, I am convinced that these buyers will in time—after the usual heated arguments—pay higher prices because the housewife will be willing to pay a few pennies more to be sure she is getting that good-looking, sound fruit—from FLORIDA, with the promise of plenty of sweet juice inside.

Many people have the idea that the return from the processors is always higher than the returns received for fruit shipped fresh. That is not true. USDA figures indicate that seventeen out of the last eighteen years the returns to growers on fresh friut shipped has been higher than when sent to the processors. These figures are based on utilization of single-strength and concentrate returns pooled together. Now, on only three years out of eighteen have the concentrators alone returned higher prices for fruit than when shipped through fresh fruit channels.

Now, someone has asked the question, "What can we as growers do about the matter? Well, here's what you can do.

1. Insist on further research to find better fertilizers and sprays that will produce a better tasting, better eating, and better color fruit.

2. When planting new groves, be sure you have the best type root stock that will produce high quality inside and outside, and with good color.

3. When selecting varieties to plant, consider those that will yield good solids together with good color. Mrs. Consumer definitely considers color in selecting her citrus.

4. In considering varieties, give serious consideration to some of the new varieties being developed by the USDA. These can be seen at USDA's Orlando Experiment Station. What we need is more fruit that is easy to peel and easy to eat—something similiar to the California navel — varieties such as temples, tangeloes, and mercots. These are the types of fruit we need to keep the fresh fruit business alive.

And, then some shipper may ask, "What can we do to help keep the fresh fruit business alive?" Well, here's what you should do.

1. Be more selective in the fruit you use for shipping to the fresh fruit market. Don't ship the varieties that have extremely low ratio and solids.

2. Do a better job of picking for the packing plant. Pulling or snapping fruit from the limbs is satisfactory for the processors, but we may have to return to clipping fruit for the packing houses.

3. Try to restrain from shipping fruit on the same date picked. Fruit needs 24 to 36 hours in order to show bruising and defects which can be graded out before shipping.

4. Adopt better handling methods, so as to reduce bruising and decay. USDA and FCES has figures to prove that fruit properly handled in bulk for fresh fruit packing plants develops less bruising and decay than when handled in the conventional field boxes—the method which has been used since the beginning of time.

5. Encourage further development of better colors and waxes as well as better fungicides to reduce decay and shrinkage. Shippers are not taking full advantage today of some good fungicides which have been proven most satisfactory.

6. Strive to improve shipping containers. By this I mean better boxes and better bags. Wooden boxes, paper and cotton bags may not be the answer.

7. Be more careful to select the best method of refrigeration in shipping.

USDA records show that fruit moving to market at below 50 degrees keeps longer and fresher.

8. Improve the handling of fruit in packing houses by better conveying methods, slower and larger machinery may be the answer.

Recent developments in packing house machinery points to a better outlook for fresh fruit shippers, but it is evident that these new developments will necessitate large capital investments in modern machinery. Failure of shippers to meet the challenge of these changing conditions means more funeral services will be held for packing houses within the next two or three seasons.

The competition for oranges is going to be vigorous next season, and probably the season after that. If we fresh fruit shippers are going to stay in business, we've got to get in there and do whatever it takes to get our share of good fruit, pack it as economically and attractively as possible, sell it smartly, and let Mrs. Consumer decide the results.

The public will continue to show preference for good Fresh Fruits and Vegetables, but it is imperative that they receive uniform quality with good taste and color. To my way of thinking, the slogan, "It's the taste that counts" is a good one, and should be kept evermost in our minds in our efforts to maintain and increase our fresh fruit business.

In closing, may I compliment the Florida Citrus Commission, Florida Citrus Mutual, and all other agencies in lending their efforts to make this citrus business profitable to all of us. All indications point to good returns for growers for a few seasons to come. It appears to me that now is the time for growers to stop

(Continued on page 30)

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Reports Of Our Field Men . . .

HIGHLANDS AND POLK COUNTIES

J. K. Enzor, Jr.,
P. O. Box 1304 Winter Haven, Fla.
Phone Cypess 3-4716
R. E. Lassiter, Jr.,
1168 Lakeshore Blvd.
Lake Wales, Fla.
Phone 3-3813

At the time this is written many people are concerning themselves with both red and purple scale. This condition seems to be very general and rather serious in many places. These insects should be watched very closely as they can cause serious wood damage as well as fruit drop.

It looks as though we will not ship very much fruit before the first week of October. Grapefruit sizes still leave a lot to be desired. A lot of the size problems ae probably due to the type of rainfall we have had this summer.

Both Texas and purple mites seem to be more noticeable. Growers who have rust mite problems at this time should take the other mites into consideration when working out their rust mite spray program.

It is expected that within a very short time the fall fertilizer application will be under way. Young groves should be getting their last application this month, especially in the colder locations.

SOUTH HILLSBOROUGH, MANATEE AND SARASOTA COUNTIES

Eaves Allison
P. O. Box 365, Sarasota, Fla.
Phone Fulton 8-2611

Citrus growers are beginning to look at their standing cover crops with a jaundiced eye, and it will not be long before these will all be chopped, disced, mowed or otherwise laid low to return their stored nutrients to the soil and prepare the grove for its fall fertilizer and its long winter "lay-by."

Fruit is sizing up well — moisture has been sufficient in this area and our scale and mite pests have been their usual pertiferous selves. Effects of the freeze are still apparent, both in citrus, native growth and ornamentals. No doubt about last winter being the worst most of us have ever seen in Florida.

Fall tomatoes are showing long green rows of sturdy plants, as are eggplant fields, and in some areas yellow squash are adding their green to the picture. Pastures are beginning to show signs of their approaching dormancy and the cattle gazing on them at this time are many and fat.

That good Lyons Fertilizer has started the fall season off with a bang, and our growers are looking for the coming fall and spring seasons to be well on the good side — for a change!

WEST HILLSBOROUGH AND WEST PASCO COUNTIES

J. A. Hoffman, Lutz, Fla.
Phone WE 9-2069

Growers have been very busy the past few weeks cutting in cover crops, hoeing and fertilizing young trees. Many growers have started applying the fall fertilizer application. The fall application should be completed by the middle of November.

There appears to be a very good crop of fruit in most groves. Fruit has sized up very good and most crops are free from rust. Fruit buyers have been very active buying many crops.

SOUTH POLK, HIGHLANDS, HARDEE AND DeSOTO COUNTIES

C. R. Wingfield
Avon Park, Fla.
Phone Glendale 2-81881

From all indications we are in for a dry fall. With some heavy September dry winds we have found our moitsure has suddenly disappeared and young trees are having to be watered. Unless we do get rain soon the citrus grower will have to start irrigation. Some vegetable growers have already found this necessary. We are working down the cover crops to conserve as much moisture as possible.

Generally speaking there has been a very good summer growth and with a cultivating period now in progress we will show more unless it becomes too dry. We hear predictions that we will have another cold winter and if this be true care should be taken to have all undergrowth cleared from under the tree and worked into the soil.

The fall fertilizer application has begun and will increase daily. The freeze damaged trees should be carefully studied before feeding so as to not over stimulate them at this time. A well balanced high organic mixture of fertilizer will fit the bill nicely.

Lyons
Fertilizers
Produce
Maximum
Crops
Of
Finest
Quality

ADVERTISEMENT — LYONS FERTILIZER COMPANY

Uncle Bill Says:

They's nothin' new in what I'm goin' to mention, 'cause it's bin said many, many times, but they ain't no better business anywhere, 'cording to our way of thinkin' than the citrus business.

It's true that from time to time, the weather, the pests, the national economy er some plague that attacks our trees and our fruit bother us fer a while, but if'n we'll sit down and think real serious they ain't no business we know that don't have it's share of troubles.

They is times when folks can put off buyin' a new car fer a few months, er even wear the same suit fer another year or so, or delay buyin' new furniture, and its possible to delay the business of paintin' the house fer a while, and maybe git along with the same old truck fer a while . . . BUT its mighty seldom that folks generally git so far down the economic ladder that they'll think of goin' without food.

And they ain't many folks who will argue that citrus fruit ain't one of the best eatin' foods in the world, 'specially Florida citrus, so with things generally pickin' up it's more'n safe fer us Florida growers to figger they'll be a good market fer our fruit this season, and fer a good many future seasons.

So, as growers, it's up to us to see that the fruit we do raise is the very finest it is possible fer us to produce.

And when it comes to producin' Maximum Crops of Finest Quality they ain't nothin' we know of that'll do the job that Lyons Fertilizers will do.

TRENDS IN THE FRESH FRUIT INDUSTRY

(Continued from page 27)

and TAKE STOCK of the situation, and see if it is not time to increase our advertising taxes. Now, while we are making money is the best time to install in the minds of the public the vital necessity of Citrus in their daily diets; but, it takes more advertising to accomplish this, and this means more money will be needed. Let's don't let the producers of Coffee steal our market. Thank you!

Classified Ads

SUPERIOR CITRUS TREES —Guaranteed no freeze damage. Nursery inspection invited. Most varieties available for Fall 1958 and Spring 1959 planting. For quotations call GLendale 2-7541, or write WARD'S NURSERY, INC., Box 846, Avon Park, Florida.

INDIAN RIVER GROVES — 20 acres to 1,000 acres — including fruit crop if purchased immediately. (No freeze damage.)
LEVERE MONTGOMERY, REALTOR
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Fort Pierce, Florida
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VALENCIA budded on rough lemon, 3/4 inch average — inspected and nematode free. Phone 2-7917. Ralph S. Jones, Crooked Lake, Babson Park, Florida.

FOR SALE — Buffalo Turbine Duster, 3-joint tractor hitch. Can be used both for field crops and trees. Bruce Anderson, LaBelle, Florida.

INDIAN RIVER GROVE — 767 acres of matured bearig groves — ¾ oranges — 29% down, 10 year terms. Shown by appointment only! (No freeze damage.
LEVERE MONTGOMERY, REALTOR
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Fort Pierce, Florida
Phone HOWARD 1-7990 or 1-3666

EXPERIENCED MAN to top work 20 acres of 15-year old pineapple trees to navel oranges. Advise basis of charges including cutting back old trees.
FLOYD L. WRAY
P. O. Box 1782 Ft. Lauderdale, Fla.

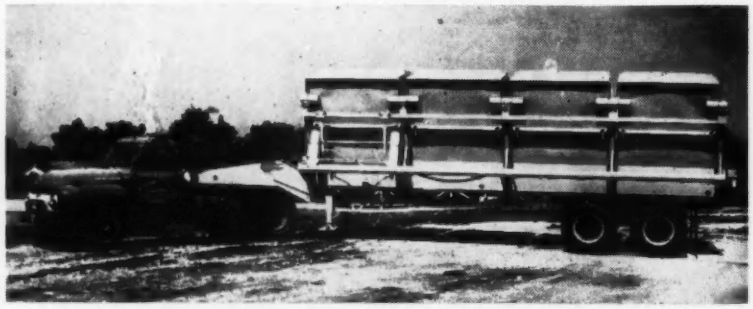
Completely reconditioned CASE GROVE TRACTOR . . . like new! Fully guaranteed. $1500. Call or write POUNDS TRACTOR COMPANY, Winter Haven. Phone CYpress 3-3159.

LEAF ANALYSIS: Analysis for nitrogen, phosphorus, potassium, calcium, magnesium, boron, manganese, iron, copper, zinc and molybdemum . . $15. Write for details to Dr. Wolf's Agric. Labs. 2620 Taylor St., Hollywood, Florida.

FLORIDA LEADS IN GRAPEFRUIT

Florida leads the world in grapefruit production, and is responsible for about a third of the world's supply of oranges, tangerines and grapefruit, according to a tabulation by Zach Savage, economist with the Florida Agricultural Experiment Station. Florida produced 69 per cent of the world supply of grapefruit last season and 76 per cent of the previous season.

FOR SALE



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Says: Henry D. Gilliard
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Enthusiastic reports such as this are coming in from orchard and grove operators wherever the Model 500 Spra-Blast is used: big diesel economies, excellent coverage, low upkeep costs.

It's the *extra* advantages you get with an Oliver that have given the Model 500 a big send-off. Such *extras* as diesel fuel savings, 38-inch airfoil design fan with high output at 1850 r.p.m., ultra-vision instrument panel, specially treated 500-gallon tank, hydraulic hitch jack—*all at no extra cost.*

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We Direct Your Attention

. . . . To the long and successful record of Lyons Fertilizers in providing the proper nutrients for your citrus trees and your truck crops . . . . over the years many of Florida's most successful growers have continued to use Lyons Fertilizers . . . . not because we are super salesmen, but for the simple fact that the uniformly satisfying results they have obtained from our fertilizers has been responsible for their habit of purchasing year after year the fine fertilizer we manufacture and sell.

It is true that we don't sell every grower in Florida the fertilizer he may use . . . . but you will find if you investigate that those whom we do sell are generally well satisfied customers.

These same products are available to all users of fertilizers . . . . and we would like to suggest that before you purchase your next supply of fertilizer you check the results obtained from Lyons users.

Make a test, if you will, of the results obtained on a plot you may set aside in your own grove for the purpose . . . . and make your own comparison.

And, of course, our Field Service Representatives are always glad to cooperate with you in every way possible.

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